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SEPTEMBER 1955

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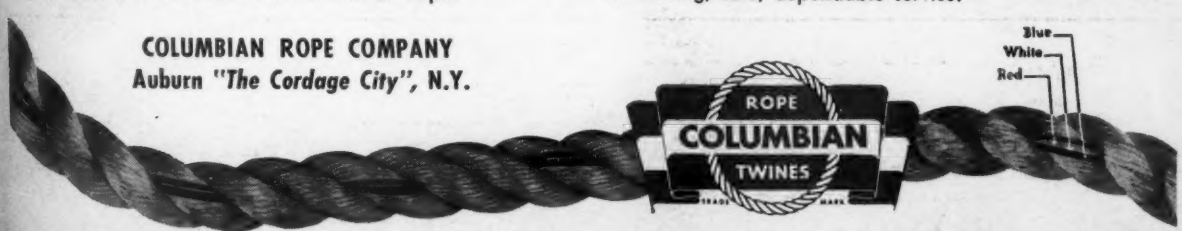

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GM DIESEL
CASE HISTORY No. IIEla-31

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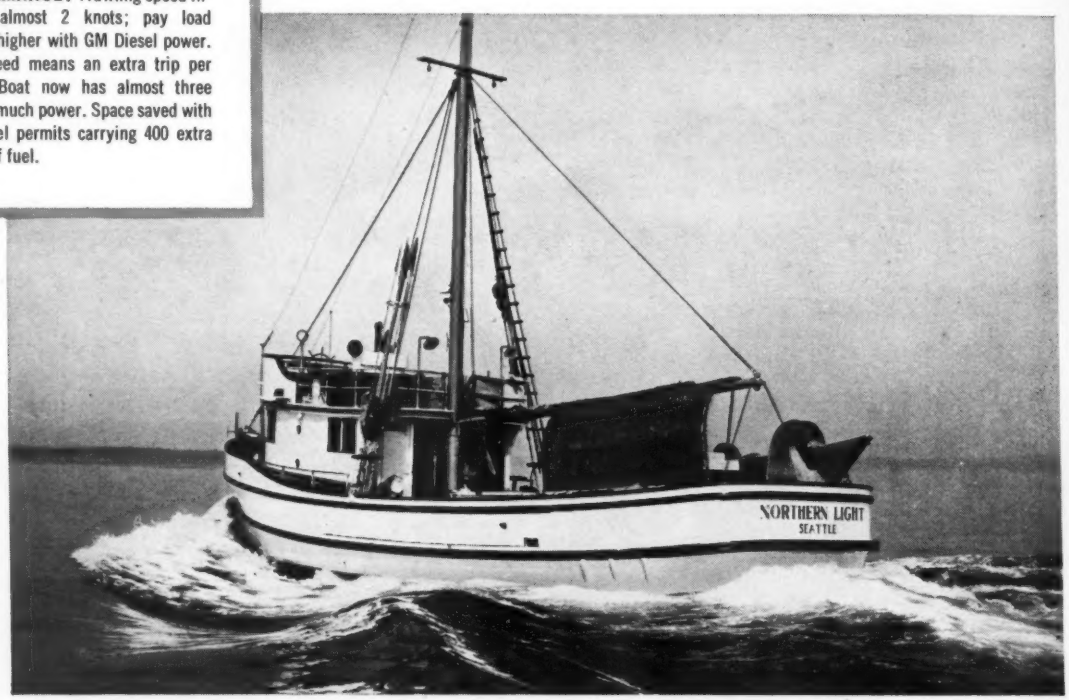

IF YOU'RE looking for more power to haul bigger pay loads faster take a close look at a General Motors 2-cycle Diesel.

You'll see an engine that costs less to buy, less to run and less to maintain than other Diesels of comparable power.

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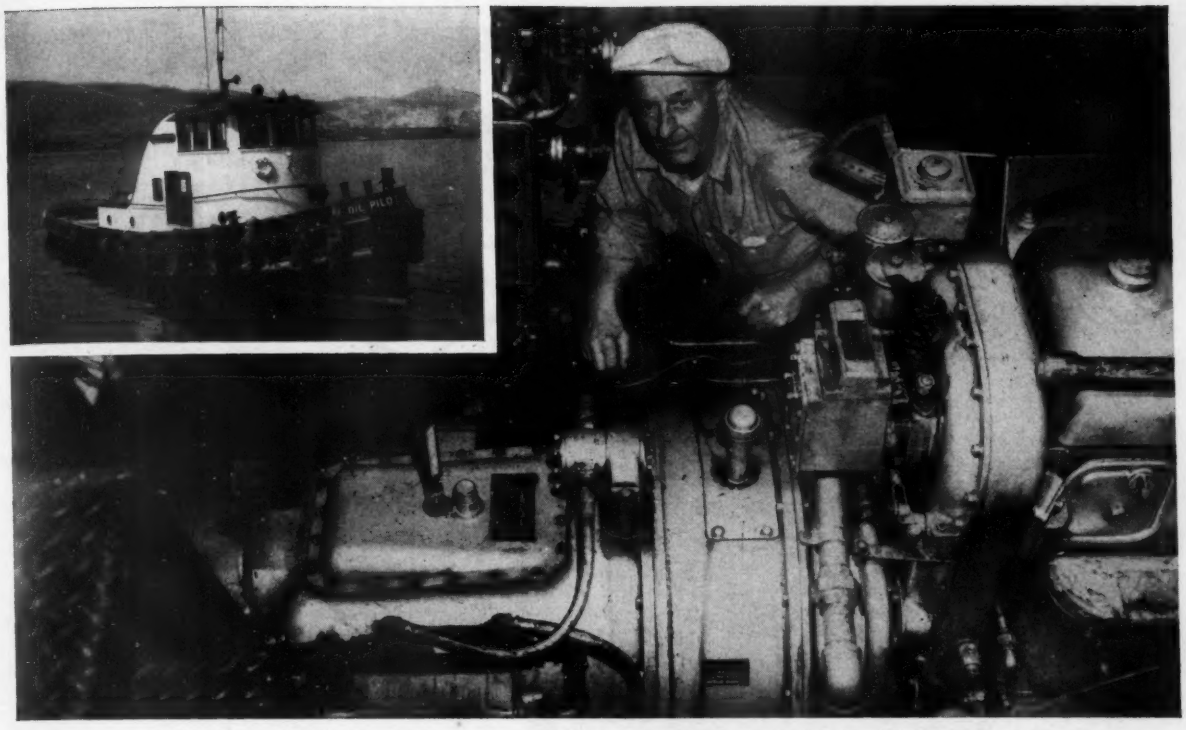

"Oil Pilot", owned by San Francisco Towing Co.,—and Captain John Pedracci with his Twin Disc MGH-340 Marine Gear.

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NATIONAL FISHERMAN

Formerly ATLANTIC FISHERMAN

Serving the Commercial Fishing Industry of the United States

Oceanographic Research Aids Industry

The contribution of oceanographic research to the fisheries is examined in a recent issue of the FAO Fisheries Bulletin, which deals with oceanography in connection with the distribution, abundance and behavior of fish, fishing operations and fisheries science.

It points out that oceanography embraces all scientific work with a biological objective or use in the waters of the world, and that the fisheries biologist must determine the general characteristics of an area and its fishery stocks. This includes the composition of the stocks, identification of species, the general life history of the fish (including feeding, reproduction and migratory habits) and the measurement of potentialities for growth, reproduction and viability.

One of the main tasks of fishery biologists at the present time is to study types of fauna found in various situations, and to evolve means of predicting the variations in the distribution. In this respect, oceanography can furnish a description of the physical, chemical and biotic properties of the seas and oceans.

There is an urgent need in various parts of the world to assess the natural abundance of stocks. Fishermen generally know a great deal about movements, shoaling and feeding habits of the fish they catch, but unfortunately, this knowledge is neither easily collected nor susceptible of extension and improvement. Oceanography can help in much of the physical study necessary to account for the behavior of shoals and their changes in density, position and depth with wind, tide and other factors.

The dependence of fishing operations on the weather and sea conditions might seem to need little discussion, but as oceanography and fisheries science advance it will always be wise to consider whether more knowledge of the behavior of the fish, or of the craft and gear, in different weather conditions, can be used to reduce loss or damage, as well as the time spent on unproductive effort.

There is also much to be learned about the actual operation of underwater gear and the reactions of the fish under different conditions, and fresh opportunities are offered by the new methods of underwater observation, photography, cine-photography and television.

It is interesting to note that a program has been undertaken by the Woods Hole (Mass.) Oceanographic Institution to investigate climatic and oceanographic factors influencing the environment of fish. The work is being financed by a grant of $200,000 under the Saltonstall-Kennedy Act.

The Woods Hole Institution aptly states that the basic question "Why do the abundance and distribution of the great fish populations change from time to time?" is a most fundamental one to the fishing industry.

The FAO report says that the experienced fisherman does not expect a complete explanation, but any knowledge which would enable him to improve his gear and fishing methods would be very welcome.

Too often in the past, the ideas of fisheries scientists have been belittled and looked upon as mere theory. Recent studies clearly indicate that much can be gained by the fishing industry if it has a fuller understanding of biological and oceanographic factors that affect fishery resources.

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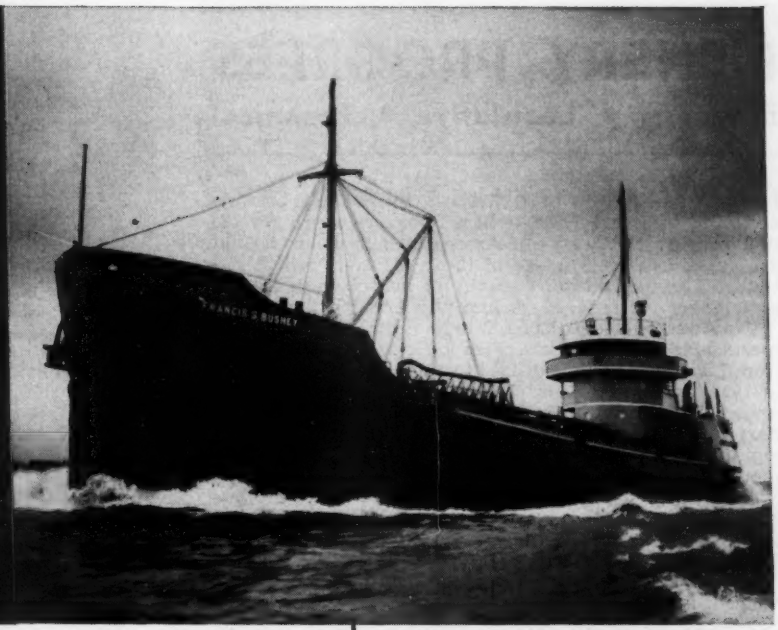

Planned primarily for American coast-wise service, the new tanker, "Francis S. Bushey," has additional sea qualities and a cruising range sufficient for foreign trade. She is 255 feet long, with a molded breadth of 42'8", and a molded depth of 16'6". She's listed at 1,522 gross tons and 2,500 dead-weight tons. Cargo capacity is 21,500 barrels of oil.

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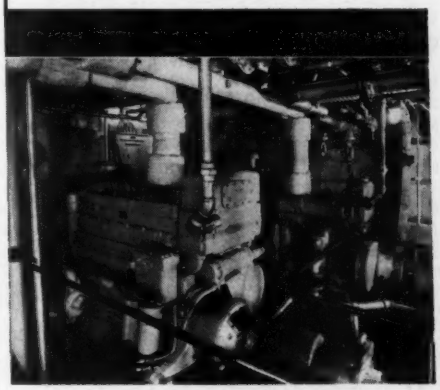

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FISHERY PROGRESS

Economic • Legislative • Technical

Further expansion of fish stick business is possible according to Fish & Wildlife Service report which reveals that roughly 60 percent of American households do not use fish sticks. This is one of the conclusions which has resulted from nationwide survey of household consumer preferences for breaded shrimp and breaded fish sticks.

These recently developed fishery products have made spectacular sales advances. Fish stick production jumped from 7.5 million pounds in 1953 to about 50 million pounds in 1954, and first half of 1955 was well ahead of same period last year. Breaded shrimp production, which started in a small way after World War II, rose very rapidly and currently seems to have leveled off in 1954 at about 17 million pounds annually.

The Fish & Wildlife Service survey represented tabulated results from questionnaires mailed out to 2,000 persons, predominately housewives, and returned by 1,797. A summary of data obtained produces these facts:

1. Fish sticks are used in less than 40 percent of all American households.
2. Only about one homemaker in five uses breaded shrimp.
3. High percentage of all homemakers trying either cooked or uncooked breaded shrimp become satisfied customers.
4. Prospects for expanding market are favorable.
5. Most consumers are indifferent about variety of fish used in making fish sticks.
6. Breaded shrimp and fish sticks completely replace other fishery products in only a very few households. A greater number but still a minority of households indicated partial replacement of other fishery products.

Relief under tariff law is being asked for fourth time in decade by New England commercial fishing industry. Eight fisheries organizations are involved, with Thomas D. Rice, executive secretary of Massachusetts Fisheries Association of Boston spearheading the appeal.

Rice, in his written request to Tariff Commission for an investigation, states: "It (New England fishing industry) contends that fish blocks, from which fish sticks are manufactured, have been imported in tremendous quantities during last year and have caused and continue to cause the domestic industry serious injury."

Organizations for which Rice speaks are: Gloucester Fisheries Association, Gloucester Seafood Workers Union, Atlantic Fishermen's Union, which has branches in Boston, Gloucester and New Bedford; Massachusetts Fisheries Association, Inc.; Federated Fishing Boats of New England and New York, Inc.; Boston Seafood Workers Union; Fishermen & Seafood Workers of the Atlantic Coast, Atlantic City, N. J.; and New Bedford Seafood Producers Association, Inc.

UN recommendation on territorial waters, which tended to confirm validity of three-mile limit as opposed to exaggerated claim of 200-mile jurisdiction, caused prompt reaction in Peruvian circles. A Peruvian Foreign Office official stated that the United Nations Commission recommendation, made at recent Geneva meeting, does not in the slightest affect the International conventions by which Chile, Peru and Ecuador have established 200-mile jurisdiction.

Foreign Office spokesman also is quoted as stating that Peruvian position has been amply set forth in its note to Great Britain (and to the United States) and that, so far as recent findings of the Commission are concerned, they constitute only a recommendation to be made to the United Nations Assembly and hence cannot be binding on Peru.

"Shrimp 'N Rice Fiesta" promotion campaign is being sponsored by shrimp industry during period September 29 to October 8, with Fish & Wildlife Service cooperating. Cold storage holdings of shrimp on August 1 were 16,056,000 pounds, an increase of more than 3,600,000 pounds over those held a month earlier, and 1,256,000 pounds greater than five-year average (1950-54). Landings were expected to be at high level during September, and imports also are usually high during that month, thus assuring plentiful supplies.

Fisheries Advisory Committee on Saltonstall-Kennedy funds met at Boston August 25 and 26 with Director John Farley and other staff members of Fish & Wildlife Service. A report on accomplishments during first year of program was presented by Director Farley, A. W. Anderson, chief, Branch of Commercial Fisheries, and Dr. L. A. Walford, chief, Branch of Fishery Biology.

Of the $3,000,000 allocated in first year of Saltonstall-Kennedy program which ended last June 30, Fish & Wildlife Service contracted for $1,311,000, or about 44 percent of the work. It is expected that a similar proportion of the program work for the current year will be done outside under auspices of Fish & Wildlife Service.

Advisory Committee discussed proposal suggesting that part of Saltonstall-Kennedy funds be apportioned among the States, but advised against this type of apportionment. Instead, the Committee recommended that funds continue to be made available to research organizations on a contract basis for specific types of research and educational and marketing activities as provided for by the Act.

While in Boston, members of the Committee were taken on a complete tour of a modern plant processing fish sticks and precooked fish fillets. Massachusetts Fisheries Association and representatives of the industry in Boston, Gloucester and New Bedford were hosts at dinner party in honor of Committee members.

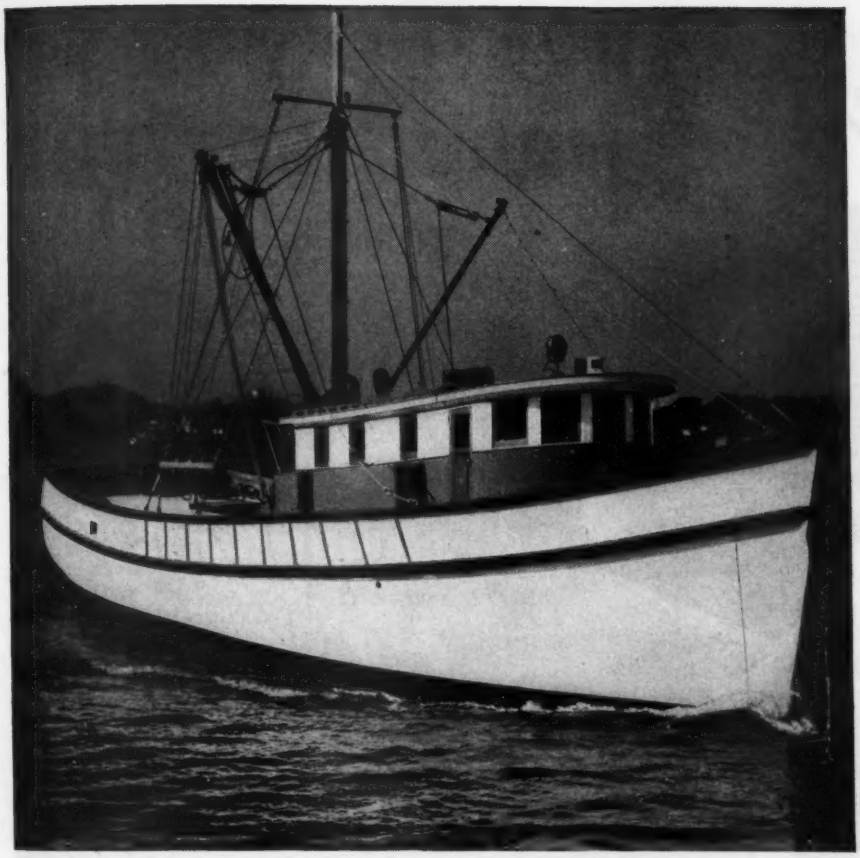
Future meetings of the Committee, according to Director Farley, will be scheduled with two ideas in mind: 1. To provide an opportunity for the Committee to study important recent developments in various fish-producing centers of the United States; 2. To learn at first-hand of problems confronting segments of domestic fishing industry. Committee's next meeting will be held at Long Beach, Calif., in Spring of 1956.

Groundfish fillet imports into United States during first seven months of current year amounted to 74.4 million pounds, compared with 78.4 million during same period of last year, a decrease of 5 percent. Canada, with 54.2 million pounds, led all other exporting countries during seven-month period, followed by Iceland, with 12.2 million pounds, Denmark, 3.4 million pounds, and Norway, 2.4 million. Imports from these four countries accounted for 97 percent of total.

During July, total groundfish fillet imports amounted to nearly 12.7 million pounds, compared with 16.5 million imported during same month of last year. This was decrease of almost 3.9 million pounds, or 23 percent, and was caused by considerably lighter imports from Canada, Iceland, Norway, Denmark, United Kingdom and West Germany.

Oyster associations affiliating with Oyster Institute of North America recently include the New Jersey Oyster Growers and Packers Association and the Pacific Coast Oyster Growers Association. This is expected to be an aid to the association when meeting with Federal agencies and Congressional committees.

Cold storage holdings of all fish and shellfish were 168,017,000 pounds on August 1, over 4,000,000 pounds greater than those held on same date in 1954. Part of this increase appears in salt-water fish fillets, but was mostly influenced by higher holdings of blocks and slabs, which are used for making fish sticks, and by flounders. Whiting was only other fish item significantly higher than last year on August 1. Favorable landings in New England resulted in whiting holdings of 15,000,000 pounds on August 1, exceeding those on same date in 1954 by 5,000,000.



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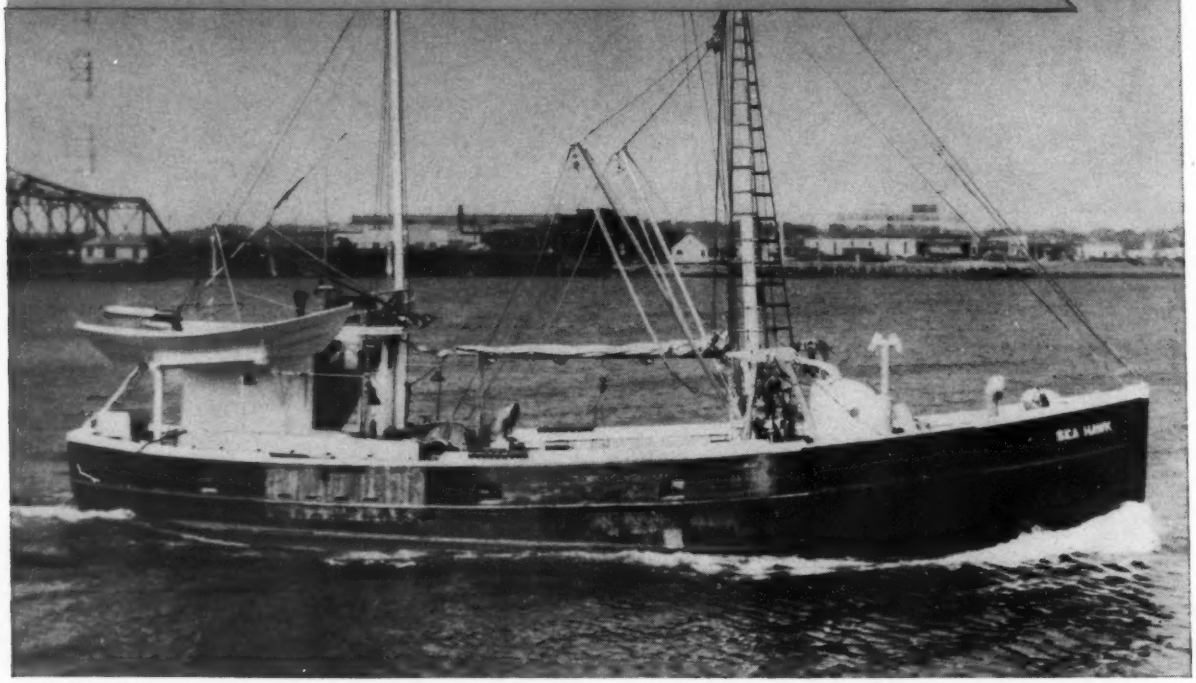

TWO years ago Captain Bill Main took his boat, "Sea Hawk," from New Bedford to Key West to try shrimping. While there he had to change oil. Unable to obtain the brand he had been using for many years, he switched to Gulfpride H.D. Then, as the Captain put it, "My results with Gulfpride H.D. were so much better that I have continued to use it since my return to New Bedford. The engine of my 'Sea Hawk' is much cleaner and consumes less oil."

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Use of Underwater TV in Fishing Gear Research

Reidar F. Sand* describes Florida experiments with television in observing operation of Swedish "phantom" mid-water trawl

WITH the advent of television into underwater research in other fields, recognition has been given to the possibilities of adapting the instrument as a means of securing direct observation of fishing gear and methods. In the past, research in the field of fishery methods and equipment has been hampered by limited access to direct observation of fishing gear in operation. Advances in design and construction of nets, trawls, and other gear have come about largely as the result of trial and error, or have been based on scanty information obtainable from work with models, or by information supplied by the efforts of divers working with underwater cameras.

First practical demonstration in this country of the application of underwater television as a research tool for experimental work in fishery methods and equipment was in early November 1954, when direct observation of a mid-water trawl net in operation was a joint field project conducted by the U. S. Fish and Wildlife Service and the U. S. Navy's Bureau of Ships. Dubbed operation "Fish-eye" by participating members of the field party, the television broadcast in the clearer Gulf Stream waters off the East Coast of Florida was carried out cooperatively by personnel from the Fish & Wildlife Service's Coral Gables, Fla. and Pascagoula, Miss. Stations and the Navy's Bureau of Ships, Washington, D. C. Representatives from the Navy Diving School, the Navy Photo Center, Geological Survey, and the University of Miami Marine Laboratory, also participated.

The underwater TV equipment was used to observe and photographically record further tests of a modified Swedish "phantom" mid-water trawl. The vidicon television chain was employed aboard the Fish & Wildlife Service's 57-foot research vessel *Pompano* to observe laterally the action of the mid-water trawl and accessories, while the trawl was towed by the Service's 100-foot exploratory fishing vessel *Oregon*. At the same time from the *Oregon*, an image orthicon camera in a special watertight housing affixed to an experimental submersible was used to view the trawl from the front.

Good Viewing at Depths of over Sixty Feet

Good viewing was obtained at depths in excess of 60 feet and at distances of more than 60 feet. Both moving picture and still photographs were made of the television observations. A limited amount of work with underwater artificial lighting to improve conditions for television observation also was carried out aboard the *Pompano* during this period.

The use of standard diving lights with reflectors and photofloods afforded improved illumination to limited distances. Considerable variation has been found in individual reflector lamp ability to withstand pressures in workable ranges. Tests suggested that controlled artificial illumination should afford greater efficiency, but particular physical arrangements of lights and television camera are required for optimum results.

As a result of these experiments, it is indicated that an underwater television chain can be utilized successfully as a means of observing fishing gear in operation. While image orthicon television equipment is certainly desirable from the standpoint of greater sensitivity and definition, it remains a comparatively complex instrument. The picture quality of vidicon television equipment is somewhat less in comparison, but should prove to be generally adequate for conditions of limited viewing distances wherever favorable illumination is provided.

* Chief of the Gear Research and Development Program of the U. S. Fish and Wildlife Service at Coral Gables, Fla.

Equipment and Methods

Over a period of two years many preliminary experiments were made to prepare the television chain for its initial demonstration, as well as to gather basic data useful in the development of television as a general gear research tool. Even though the sensitivity of the television camera is much greater than the human eye, many mechanical and technical modifications were necessary to utilize the maximum picture potential.

Frequent complete checkovers and maintenance repairs resulted from the residual effects of salt air, dampness, and even short periods of inactivity. A separate generating set was installed aboard the research vessel *Pompano* to provide an adequate 110-volt A.C. power supply for the television chain. In addition to the syncpulse generator built into the chain, an auxiliary unit often was necessary to stabilize picture quality under field conditions.

The television camera was housed in a watertight steel cylinder and connected by a flexible multiconductor cable to a remote control monitor aboard the research vessel. In this manner the camera becomes a sort of remote eye under the operator's control. Such a system conceivably can be operated at much greater depths than a diver can withstand and for much longer periods of time without risk attendant to a diver operating an ordinary underwater camera.

Effect of Sunlight and Surface Conditions

By comparison of available data on underwater photography procedures and progressive experimental underwater TV operations, optimum and favorable conditions for the use of TV in gear research were investigated. Consideration of the critical angle of sunlight and various surface conditions suggested more favorable results could be expected with a slight ripple on the water than in a flat calm.

In the clearer waters such as those of the Gulf Stream off Florida, as much as 50 percent natural sunlight could

(Continued on page 37)

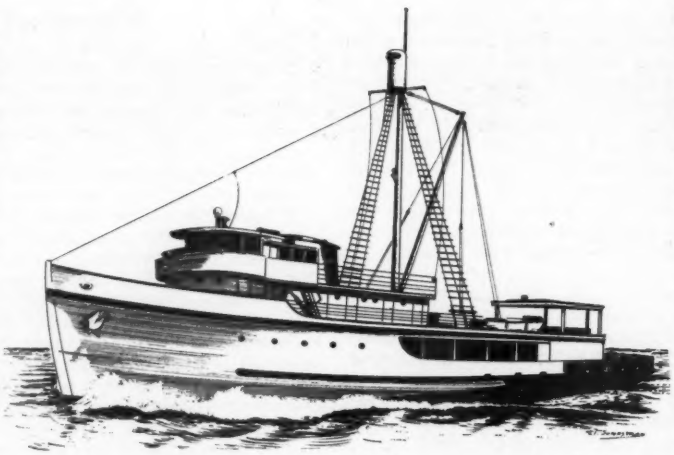
Emblem for National Fish Week, which will run from October 3-8, and is being sponsored by the National Fisheries Institute, Maine Sardine Industry, Shrimp Association of the Americas and Fisheries Council of Canada.

Development of Pacific Tuna Clipper Design

James F. Petrich* says hook and line fishing and expansion to more distant waters have been determining factors

THE tuna clipper, one of the largest and most complex and most romantic of the fishing vessels of the world, is a development around one of the simplest and most direct means of catching fish —luring them with live bait, catching them individually with a hook and line.

Since the early pre-1920 days of tuna fishing, the fishery has expanded to include not only the waters off the Southern California coast but the waters off the West Coast of Mexico and Central America and the Northwest coast of South America, as far as 3,000 miles from the home ports of San Diego and San Pedro, Cal.



Artist's conception of 150' Pacific Coast tuna clipper. (Courtesy of Fish & Wildlife Service's "Commercial Fisheries Review").

The fishing boat has developed from the small flush deck launch, without living accommodations and only able to make daily trips out of port, to the modern high seas tuna clipper able to travel 10,000-12,000 miles, ranging in size from 90 to 169 ft. long, able to carry huge quantities of live bait as well as the Diesel fuel oil and provisions needed for the long trips, and having capacities to catch and bring home 130 to 630 tons of refrigerated tuna fish.

And yet, with all the strides made in the development of the tuna fishery these many years, and though the changes in the design of the tuna clipper have been many, still the manner of fishing the tuna has remained the same —catching them from the boat with hook and line. This method of fishing, so individual and simple, so out of tune with modern complex methods of doing things in massive numbers, still remains one of the most effective ways of catching tuna. It is the primary consideration around which revolves the whole design of the tuna clipper.

Have Yacht-like Appearance

The modern high seas tuna clipper is a good looking, even yacht-like appearing vessel, with a raised deck forward reaching back well past amidships to the deck boxes built on the main deck aft. The stern is low in the water, the main deck aft being practically awash at all times. Around the stern are the steel fishing racks hung outside the main deck rail and extending forward on the port or fishing side up to the start of the raised deck. There are usually three deck boxes on the stern, in line fore and aft, and set inboard of the main deck rail to allow for a 4 or 5 ft. passageway at the sides and around the stern. Over the deck boxes is built a canopy strong enough to withstand the pistol shot impact of an errant flying hook and used to protect the "chummer" at his station atop the boxes.

Forward of the deck boxes about amidships is the single mast and boom used to lift the power tender and fishing skiffs carried on the raised deck. Atop the mast is the covered crow's nest large enough to seat two men. Ahead of the mast is the deckhouse with accommodations for 10 to 20 men in rooms that extend the full width of the house to allow free passage of cooling sea air through the open doors on each side. Above the deckhouse is the pilothouse and chart room and behind them the stack.

Machinery Below Decks

Below decks is the maze of machinery to operate and propel the complicated tuna clipper, and also the hold, which is divided into many watertight compartments. The engine room below the main deck is well forward, just aft of a large fuel oil tank in the bow. From the engine room aft leads a full height shaft alley flanked on either side by the 8 to 16 watertight wells used to carry fuel oil and live bait on the outbound trip and refrigerated tuna cargo on the homeward voyage. Aft of the wells in the very stern are tanks for carrying fresh water and more fuel oil.

In the engine room, besides the single main Diesel propulsion engine, there are installed two large Diesel-driven generating sets as well as two large bait water pumps, bilge and fire pumps, fuel oil transfer pumps, lube oil tanks and other auxiliary machinery and equipment. The shaft alley contains, besides the propeller shaft, the brine circulating pumps and piping and the complex ammonia refrigeration lines for each well and deck box.

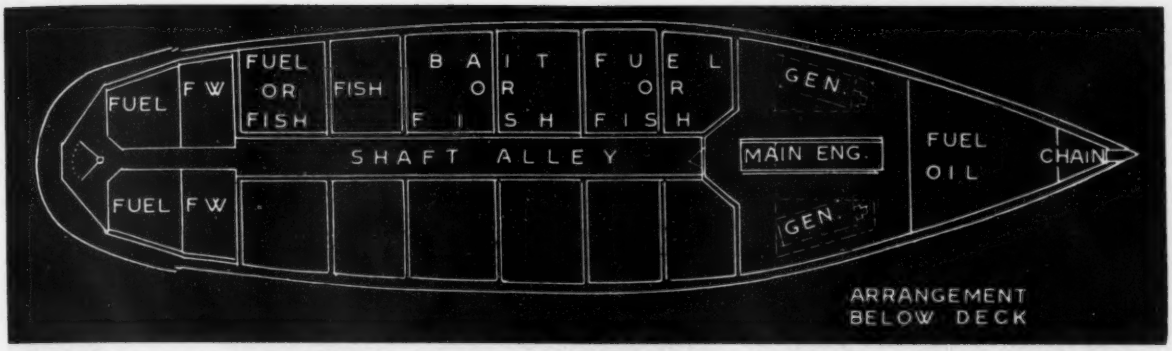
Above the engine room in the 'tween deck space is the upper engine room containing the main switchboard, the ammonia refrigeration compressors, air compressors and air bottles, the engineer's work bench, CO_2 fire fighting equipment and other such machinery. Forward of this is the forecastle space for ship's storage. Aft, two watertight doors, one port and one starboard, lead to the open 'tween deck space. This area contains the hatches to the wells below deck through which the fish are loaded; and in the center of this space just aft of the upper engine room bulkhead is the spacious galley cabin. The open 'tween deck space can be enclosed with storm doors at the sides and storm doors aft on either side of the forward edge of the deck box to give protection from the severe weather which is sometimes encountered.

The modern tuna clipper is of either steel or wood construction, but the wood-constructed vessel is preferred by the majority of fishermen. Steel construction has gained great popularity since the end of World War II, because of its advantage of greater available space within the vessel, as well as competitive cost when compared to the rapidly-rising price of the wooden vessel. However, recently there seems to be a trend back to wooden vessels. The corrosion problems of the steel vessel in the warm tropical waters have been a headache to the fishermen.

Fishing Trim and Stability

The tuna fisherman has found from the first that, in order to fish effectively and brace himself against the terrific impact of a tuna striking at his hook and to have enough leverage to lift the heavy tuna out of the water past his shoulder and into the boat, he must be standing

* Excerpted from a speech presented by Mr. Petrich, who is Naval Architect at Western Boat Building Co., Tacoma, Wash., before the 1953 FAO International Fishing Boat Congress in Miami, Florida.



Below deck arrangement of a typical Pacific Coast tuna clipper. (Courtesy of Food and Agriculture Organization of the United Nations).

only a few inches above the surface of the water. He stands in steel racks, hung outside the rail around the stern of the boat, in order to be able to trail his hook as far from the hull as possible, for the tuna is timid and will not come too close to the boat. This also leaves the space behind him on the deck free to receive the fish which he catches.

It has worked out best to have the fish racks at the same level as the deck and to have the height of the rail behind the fisherman in the racks to reach to the height of his buttocks; and then to trim the ship with just a few inches of freeboard at the stern, enough to maintain a safe and seaworthy vessel, and yet hold the fishing platform close to the water level.

Method of Carrying Live Bait

The method of keeping live bait aboard has imposed many important and interesting requirements upon the design of the tuna clipper. Because good bait is becoming scarcer and harder to come by, it is extremely important that the bait when brought aboard be kept healthy and alive against the time it is used.

The chummer, who cares for the bait and who tosses it out on the sea sparingly or extravagantly as the conditions warrant to chum up the schools of tuna, is considered next in importance to the skipper and chief engineer aboard the tuna clipper. He has brought back many bits of knowledge to apply in the design of tuna clippers. Thus, now, there are incorporated in the specifications for all bait wells and boxes, white painted interiors, and watertight glass lenses in the tops and sides through which electric lamps shine to light up the interiors and keep the bait from being frightened.

A large bait pump is installed with a capacity to pump enough sea water through all bait wells and boxes to give a complete change of water in them every 12 minutes. And to guard against the chance that this pump ever will break down, another pump is installed of the same capacity. For if the bait water supply were to stop for as short a time as 15 minutes, the bait probably would die.

The two large propeller-type, bait pumps, 10 in. size with 10 hp. motors in the smaller tuna clipper, up to 14 in. size with 50 hp. motors in the large clippers, are usually installed on each side of the main engine in the aft end of the engine room and directly over their own sea chest valves. The pumps discharge into a common header pipe, which passes through the length of the shaft alley and feeds through individual valves into the bottom of each bait well and deck box.

The water flow through each tank is dispersed through a screen at the inlet, rises up through the tank, then passes through an outlet screen and overboard through an overflow pipe. The level of water in the tanks is kept well up in the hatch, which is built about 2 ft. high above the deck, and this is done by regulating the amount of overflow through the overflow pipes. These hatches are 4 to 5 ft. square, large enough to provide easy access to the bait

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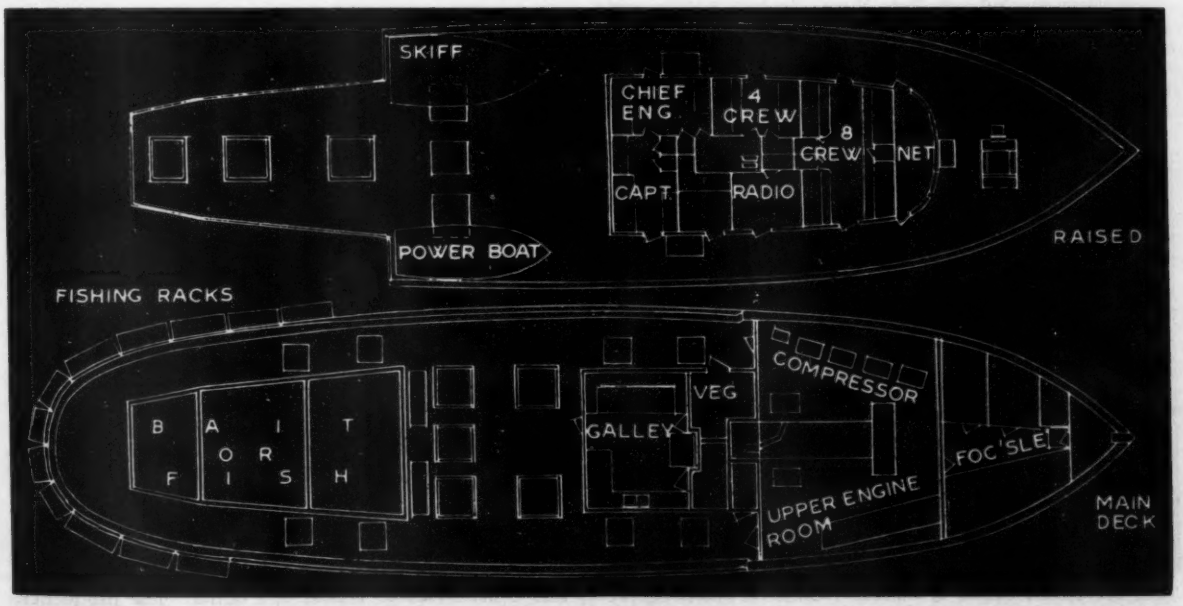


Arrangement plans of typical Pacific Coast tuna clipper, showing the raised and main decks. (Courtesy of Food and Agriculture Organization of the United Nations).

Increased Production Sought by Oyster Industry

Oystermen on Atlantic, Pacific and Gulf of Mexico meet at Baltimore for forty-seventh Annual Convention

THE problem of how to increase oyster production, and research projects being carried out toward this end, were in the forefront at the 47th Annual Oyster Convention, held August 1-4 at the Emerson Hotel in Baltimore, Maryland. Nearly 350 leading oyster growers, packers, dealers, distributors and research technicians from Maine to Texas as well as Washington and California convened for the affair, which was sponsored by the Oyster Growers and Dealers Association of North America, National Shellfisheries Association and Oyster Institute of North America.

In addition to oyster production problems, other facets of the business covered included sanitation of waters over the oyster beds, merchandising, packaging, freezing and conservation of oysters. The oystermen elected William P. Ballard of Ballard Fish & Oyster Co., Norfolk, Va., as president of the Oyster Growers and Dealers Association, succeeding J. Richards Nelson, New Haven, Conn.

Other officers of this Association are: Royal Toner, Lester & Toner, Inc., Greenport, N. Y., re-elected first vice president; Raymond F. Wentworth, O. E. Wentworth & Co., Baltimore, and William R. Woodfield, Woodfield Fish & Oyster Co., Galesville, Md., other vice-presidents; J. Richards Nelson, director-at-large; and David H. Wallace, Annapolis, Md., re-elected secretary-treasurer.

Directors of the Oyster Growers and Dealers Association for the various States include the following: Alabama—James McPhillips; Connecticut—Andrew Radel, Waldron Bayles; Illinois—R. P. Fletcher, Jr., Edwin Plitt; Maryland—G. I. R. Lore, S. S. Bevans; Massachusetts—James Munson, John Mayhew; New Jersey—Lemuel Newcomb, Norman Jeffries; New York—August MacTaggart, John Plock; Rhode Island—Otto Alletag, Halfdan Andersen; Louisiana—Joseph Jurisich, Baldo Pausina; Virginia—Frank Miles, Wade Walker; Pennsylvania—Joseph C. Robbins, Matthew J. Ryan; Delaware—Walter J. Lehman, Roy Hand; and Washington—Verne Hayes.

Executives of East and West Coast oyster industry meeting during 47th annual convention at Baltimore are, left to right: David H. Wallace, secretary-treasurer of Oyster Growers and Dealers Association; William P. Ballard, newly-elected president of the same Association; and Malcolm Edwards, president of the Pacific Coast Oyster Growers Association.

Named as officers of the National Shellfisheries Association were G. Francis Beaven, Solomons, Md., president; Dr. Melbourne R. Carriker, Chapel Hill, N. C., vice-president; and Dr. L. Eugene Cronin, Solomons, Md., secretary-treasurer. Retiring president of the Association is Dr. A. F. Chestnut of Morehead City, N. C.

More Oyster Seed Needed in North

Limited production has been the real problem of the oyster industry and will continue to plague oystermen for some time, according to David H. Wallace, director of the Oyster Institute of North America. He pointed out that light oyster setting is the major difficulty in most Northern areas, and said that the industry is desperately searching for ways to get seed.

Wallace continued: "Never in the history of the oyster industry have we enjoyed the demand we enjoy today. It is up to us to be alert to recognize new techniques and adopt them. The market can and will absorb greater quantities of fresh oysters."

Regarding biological research on oysters and other shellfish, Wallace stated: "More money is being spent than at any other time in the industry's history. This represents the real hope for the oyster industry."

Three new officers elected by National Shellfisheries Association during 1955 Oyster Convention are, left to right: Dr. L. Eugene Cronin, secretary-treasurer; G. Francis Beaven, president; and Dr. Melbourne R. Carriker, vice-president.

Urges Cutting of Production Costs

George M. Woodward, University of North Carolina research associate, said an examination of oyster production, demand and cost factors would indicate that prices and costs of production will have to be cut "rather drastically" if the industry is to sell significantly larger quantities than at present on the sole basis of price competition for the consumer's dollar. The production costs must be cut, he said, by increasing output of the oyster beds. This could best

be done, he concluded, by encouraging private ownership of oyster bottoms.

Woodward suggested that private owners would work inferior beds to their maximum output instead of concentrating on the better beds and reducing them to the level of the less productive areas. He also said private owners would be less likely to strip an oyster bed to the point where it can't be replenished.

Woodward described as "definitely downward" the long-term trend in oyster production on the East Coast "despite increasing population and improving standards of living in this country." He said the oyster production trend contrasts sharply with the trend in the production of red meat. Eastern oyster production figures were 108 million pounds in 1920 and only 66 million pounds in 1950.

Woodward told oystermen that their preoccupation with production problems in recent years may have reduced the amount of selling effort exerted. On the other hand, he said, improvements in techniques of transportation and refrigeration during the past half century have made the fresh product available in practically all markets throughout the country.

Suomela Describes Research Program

"Among the biological problems facing us today, the most critical are lack of satisfactory production in many areas and the destructive action of oyster drills, green crabs, and other predators, said Arnie J. Suomela, assistant director of the Fish and Wildlife Service. He continued: "Fortunately, our efforts during the past year have been given a much-needed 'shot in the arm' by funds made available under the Saltonstall-Kennedy Act.

"Our biologists at Milford, Conn. continue to study the spawning and setting of oysters in Long Island Sound. The industry was advised to utilize more extensively the inshore, well-protected waters for cultivation of oysters, and with the cooperation of State shellfish authorities and several oyster companies, spawning beds were established in such areas.

"Our staff at Milford has demonstrated that oysters of different geographical areas along the Atlantic Coast belong to races having distinctly different physiological requirements. Therefore, importation of Southern oysters into the waters of Long Island Sound is an unwise and wasteful procedure because they never will propagate normally under local conditions.

"Other studies showed that the ecological conditions of our North Atlantic shore are well fitted for the existence and propagation of the European flat oyster. In recent years, the Maine Department of Sea and Shore Fisheries has planted some of our stock of this species and report that they have propagated naturally.

"Laboratory culture of larvae continued, special attention being paid to their physiological requirements and to ways of controlling their diseases. Methods for hatching larvae and growing juvenile mollusks have advanced so far that several concerns are experimenting with commercial production of clams using these procedures.

"We may eventually solve the drill control problem by chemical warfare. To develop suitable weapons, we recently have embarked on a large-scale screening program at our Milford laboratory. Through the National Research Council, we are receiving a constant supply of newly-developed organic chemicals, and are testing their effect on drills under experimental conditions. What we hope to find is a cheap chemical that will attract drills, or repel them, or poison them. At the same time we are intensifying our studies of the physiology of drills to find weak points in their life cycle where these predatory animals may be most vulnerable to attack.

"The seventh annual Sagadahoc Bay, Me. soft clam census, which was completed in June of this year, shows a decrease in the number of clams over 25 mm. from 11.5 millions in 1954 to 8.3 millions in 1955. This is a continuation of the trend towards a decreasing population in Sagadahoc Bay. A coincident increase in the population of green crabs has been observed in the Bay, and is believed to be responsible for the decrease in the clam population.

With her decks heaped with oysters and her crew ready to jump ashore after a day's dredging on Chesapeake Bay, the 60' "Ivy" returns to her dock near Bena, Va. Besides dredging, the craft also is used to plant oyster shells and service fishing nets, under command of Capt. W. R. Hayes. She was repowered in 1946 with a General Motors "4-71" Diesel.

"As a means of green crab control, low wire-mesh fences, each enclosing 100 square feet, were installed in Sagadahoc Bay during the Spring of 1954. While these fences have prevented most crabs from entering the areas, the small clams are sufficiently active to move in and out of the small fenced sections, and are eventually destroyed on the open flats.

Gulf of Mexico Oyster Yield Ahead

Suomela continued: "Oyster production on the Gulf Coast for the 1954-55 season to date is ahead of the preceding two seasons in spite of the many predators, frequently unfavorable environmental conditions of too high or too low salinity, and the pollution of many good growing areas. This gain is due to increased cannery production for which there is a well-established market both for domestic consumption and for export. Meanwhile, the industry for fresh shucked oysters in the South has remained less significant.

"Undoubtedly many factors are involved in this poor marketing position of the fresh Gulf oyster as compared with its biologically identical brother from the Chesapeake Bay and north. These include excessive labor costs in tonging and in shucking due to small size, insufficient return of shell to beds, and other cultural practices related to the general use of public beds as compared to those in use for private beds in other producing areas. Much of the trouble is that there is not enough consumer demand for fresh Gulf oysters when they are at their best, to make general improvement of conditions economically feasible.

"The present program of the Service is aimed at improvement of the marketing position. The fresh-shucked oyster market is now largely limited geographically to a thin strip of the coast not even including the whole of the States in which the oysters are produced. Among the reasons for this may be mentioned the difference in color —brown and black shades rather than the uniform gray of the Chesapeake oyster. There is the tendency to develop free liquor after packing. Directly related to this characteristic of excessive bleeding is the presence of shell and mud due to the very limited washing usually given these oysters.

"Environmental and physiological reasons for color, its chemical character, and ways to control or eliminate it are being studied. The basic physiology of the tendency to bleed excessively also is under investigation.

(Continued on next page)

NEW JERSEY TO VIRGINIA—Three Middle Atlantic oyster producing States are represented as William P. Ballard of Norfolk, Va. (seated), president-elect of the Oyster Growers and Dealers Association, meets with secretary-treasurer David H. Wallace of Annapolis, Maryland, and three of his directors. Standing from left to right are: G. I. Rupert Lore, Solomons, Md.; Samuel S. Bevans, Baltimore; Mr. Wallace; and Lemuel Newcomb, Vineland, N. J.

"Much of the work will be related to the freezing of oysters and oyster products, since basic knowledge as to how and when Gulf oysters can best be frozen and stored will materially better the industry's economy in two ways: (1) it will permit spreading out the season, and (2) it will permit enlarging the market area greatly.

"If a good frozen package of individual oysters, or a product such as breaded (raw or pre-cooked), smoked, creamed, scalloped, or otherwise prepared oysters could be developed, Southern oysters could be packed when in prime condition and marketed in an orderly manner throughout the year as a high-quality product. Any foreseeable increase in oyster production from the Gulf Coast thus could be absorbed without depressing prices of the raw, fresh, or frozen product.

"We hope to develop an acceptable and practical field method for the evaluation of fresh oysters. An improved technique for the bacteriological examination of oysters also is being developed. Such a rapid and positive test, if available, would go far toward establishing the frozen oyster products in our markets."

Maryland Oyster Rehabilitation Progressing

Maryland's oyster chief, who is John Tawes, chairman of the Tidewater Fisheries Commission, cited the increased production of Chesapeake Bay oysters in the State, and expressed hope the total soon would grow to 5,000,000 bushels per year. He said that development of the industry under the Maryland program "took place faster than we ever had anticipated."

Mr. Tawes reported that oyster production in Maryland last year climbed to 3,060,000 bushels, a total about a million higher than Maryland waters yielded in 1951. He attributed the increase to the concentrated program of strict enforcement of oyster regulations and heavy planting of oyster seed and shells to give baby oysters something to grow on.

Commission Chairman Tawes said that only 590,000 bushels of shells were planted on oyster grounds in 1951, while the figure thus far this year has been 2,277,000 bushels. With the addition of mechanical equipment, Mr. Tawes reported that on one day during the past season 90,000 bushels of shells were loaded, transported and planted. Next year's goal is 3,000,000 bushels of shells.

Depleted oyster and other shellfish supplies can be replenished if watermen cooperate with scientists in a forceful drive to accomplish this, Gov. McKeldin of Maryland said. He continued: "The great need—today and tomorrow—is for more enthusiastic support and more cooperation from the watermen, the men who make their living from the harvest of the sea."

Chance to Develop Seed Area

"Maryland has a chance to develop an oyster seed area rivalling the famous natural area at James River, Va., but we have to face the fact that it will take a lot of hard work," said James B. Engle of the Fish & Wildlife Service's Chesapeake Laboratory. Engle discussed the decline of oyster production in Maryland, comparing the 15,000,000 bushels reported taken in the season of 1884-85 with the crops of 2,000,000 to 3,000,000 bushels during the past 25 years. He said the decline has not been due to environmental or catastrophic conditions. Maryland, he noted, has no natural producing area or high potential seed areas.

Time of planting shells is extremely important, according to Engle, and it has been found that using clean shells will give double the setting of old shells. Engle stressed the need for setting aside areas that have seed potential for careful development.

Says New Jersey Oyster Beds Are Overworked

Harold Haskins of the New Jersey Oyster Research Laboratory, and Lawrence Pomeroy, now at the Marine Laboratory, Sapelo Island, Ga., reported on the "New Jersey Natural Seed Beds Rehabilitation Program." Mr. Haskins discussed research in the approximately 35,000 acres of planting grounds owned by New Jersey in the Delaware Bay and Delaware River area. He said that pollution and predators are not believed important in the decline of the industry there, but overworking of the beds is believed to be the principal cause.

Mr. Haskins noted effects of closing natural beds and viewed possible movements of larvae—which his laboratory placed far enough up the River to prevent migration down into the Bay and ocean. He concluded that further evaluation is needed in these studies.

Transplanting of Maryland Oysters to Florida

A paper dealing with transplanting of oysters from different geographical areas was presented by Philip A. Butler of the Fish & Wildlife Service's Pensacola laboratory. He described what happened when St. Mary's, Maryland, oysters were transplanted in the Gulf of Mexico. Six-month-old oysters were kept there one year before sampling and testing.

Mr. Butler said the experiments indicate that there appears to be no hereditary pattern in spawning. He disclosed that the Chesapeake oysters greatly extended their spawning season when transplanted to Pensacola, and offered the opinion that the oysters were not responding to any "particular threshold of temperature", but to relative temperature changes.

Primarily making use of slides, G. Robert Lunz of the Bears Bluff (S. C.) Laboratories described various oyster cultivation experiments in ponds and marshlands.

Certification of Foreign Shellfish

J. Richards Nelson of New Haven, Conn., retiring president of the Oyster Growers and Dealers Association, reported: "This past September the U. S. Public Health Service called a conference of public health officials from all over the country. The subject considered had primarily to do with the need for certification of foreign shellfish that come into this country.

"Within recent years frozen shellfish have appeared on the market from Mexico and Japan, and our Public

(Continued on page 29)

Five Hundred Boats Blessed At Biloxi Shrimp Festival

"Captain Roy" judged best decorated fishing boat in Mississippi celebration

NEARLY 500 shrimp boats paraded along the Front Beach Channel at Biloxi, Mississippi, July 31 in observance of the annual Shrimp Festival and Blessing of the Fleet. Climaxing three days of celebration the giant marine parade was the largest ever seen in Biloxi.

The Biloxi Shrimp Festival got under way July 29 with the opening of the Second Marine and Fisheries Exhibit Show by general chairman Yankie Barhanovich. The Show, which included exhibits by 15 maritime suppliers, lasted the entire three days of the Festival.

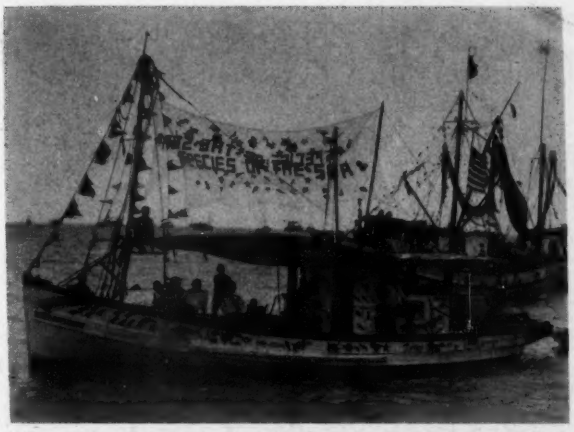
Another feature of the Festival was a ten-float Mardi gras-flavored night street parade. The floats were ridden by young ladies who were contestants for Shrimp Queen of 1955, including Catherine Ann Baricev, daughter of Biloxi fisherman Tony M. Baricev, who was selected for the honor. The beautiful night street pageant was carried out in the theme of "Seafood Festival of the Sea."

In the competition for the best decorated boat, the *Captain Roy*, owned by Edward Kopazywa and decorated by the Girl Scouts in a religious theme, won the Bernard Taltavull Memorial Trophy and a cash award of $250. Second place award of $150 went to *Captain Henry*, owned by Henry Kopazywa. Tied for third place were *Kuluz Brothers*, owned by Kuluz Brothers Packing Co., and *Jane E.*, skippered by Tony Barhanovich.

Following the memorable boat parade the boats were individually blessed by Reverend Herbert Mullin aboard the *Reub. Junge*, while from the dock on the shore Reverend Charles Goetz delivered the sermon. The blessing at the beginning of the season is a petition to God for an abundant catch, a safe voyage, a tranquil harbor and divine favor for the fisherman and his family.

Seafood Production on Upswing

Shrimp and oyster production in Mississippi is on the upswing, according to a recent survey of seafood factories located in and around Biloxi and figures from the Mississippi Seafood Commission. The Commission stated that the yield of oysters has increased ten percent this year over last, but that shrimp catches have fallen five percent. Although the shrimping season is at its peak now, this peak is not reflected in the figures obtained, and it is expected that the shrimp catch will show a marked gain when landings are tabulated at the end of the year.



Winner of second prize in best decorated boat contest at the Biloxi, (Miss.) Shrimp Festival and Blessing of the Fleet was the "Captain Henry", skippered by Capt. Henry Kopazywa.

Officials of the Weems Seafood Co. state that there was about a 10 or 15 percent production increase this Summer over last. The Victory Packing Co. has installed new graders and ice crushers to take care of increased production. Secretary-treasurer James Williams declared that the firm's business was up about 70 percent.

Southern Shell Fish Co. also enjoyed about a ten percent increase over last year, according to Chester A. Delacruz, manager. The Company has a new warehouse to take care of the increased production.

Mavar Shrimp and Oyster Co. and Bernard Taltavull Shrimp and Oyster Co. are enjoying the same business as last year. About a 25 percent increase was reported by the Sea Coast Packing Co. Kuluž Brothers Packing Co. had a 10 percent increase, while Dubaz Brothers Seafood Co. and DeJean Packing Co. reported the same volume of business as in 1954.

With some 30 major seafood packers and over 900 boats operating, the seafood industry in Biloxi has been and remains a large economic factor.

The marine parade forms and the mighty shrimp armada of nearly 500 boats churns the Biloxi, Mississippi, channel to receive the annual Blessing of the Fleet intonation by Rev. Herbert Mullin.

New 60' shrimper "Silver Sands", owned by Albert King who fishes out of Gulf Lagoon Fish Co. of Gulf Shores, Ala., makes graceful picture as she cuts through the waters of the San Sebastian River on her trial run. The vessel was built by Diesel Engine Sales, Inc., St. Augustine, Fla., and is powered with a 165 hp. General Motors Diesel.

New Trawler "Silver Sands" Joins Alabama Shrimp Fleet

Albert King, who fishes out of the Gulf Lagoon Fish Co. of Gulf Shores, Ala., has a new 60' shrimp trawler, the *Silver Sands*. She was the 527th trawler built by Diesel Engine Sales, Inc. of St. Augustine, Florida, and has a beam of 18'. The gross tonnage is 53, and she has a fish hold capacity of 25 tons.

The *Silver Sands* has a 9 x 12 fir keel and deck beams of 2 x 4 on 12 inch centers. The ribs are 2¼ x 4½ steam bent oak, stringers are 2 x 6 pine and the outer planking is 1½ inch select fir and cypress.

The new shrimper's deckhouse measures 19 feet in length by 8 feet wide, and is made of marine plywood and cypress with 2 inch pine flooring. The master's cabin has three bunks. International paint was used on the deckhouse, and the vessel's bottom is finished with Hart & Burns Navicote.

The *Silver Sands* is powered with a 165 hp. General Motors 6-71 Diesel, sold by Florida Diesel Engine Sales, and turning a 4-blade 46x36 Columbian Bronze propeller on 3" Tobin bronze shaft with Goodrich Cutless stern bearing. Other engine room equipment includes 1¼" Jabsco bilge pump and a Marine Products auxiliary pump, 1500-watt Delco-Remy generator, and 600-watt, 32-volt Onan auxiliary generating set. The four 8-volt heavy-duty batteries were made by Surrette, and the chains and sprockets were supplied by Link Belt Co.

There is a 36" mahogany steering wheel, 6" Ritchie compass, 515½T Stroudsburg hoist and a Portable Light Co. One-Mile-Ray searchlight. All the brass hardware was furnished by J. M. Keely Sales Co.

The *Silver Sands* has four 750-gallon fuel tanks and two 175-gallon water tanks.

Supreme Court Decides in Favor of Oystermen

The Alabama Supreme Court recently backed up the efforts of two Bon Secour men to continue dredging for seed oysters on their own private oyster bed in Mobile Bay. The Department of Conservation interceded, stating that John Ray Nelson and John R. Nelson, Jr. had been given a permit.

The injunction which had been filed against the Nelsons by the Mobile Bay Sea Food Union, was designed to halt them from oyster dredging on White House Reef. When the Nelsons presented a motion to dissolve the temporary injunction, it was denied by Mobile Circuit Court.

Mississippi Landings for First Six Months Show Big Gain

Total landings of fish and shellfish at Mississippi ports for the first half of 1955 amounted to 74.4 million lbs., compared with 39.5 million lbs. reported for the corresponding period of last year. This was an increase of 88 per cent.

Landings at Mississippi ports during June amounted to 47.4 million lbs., compared with 25.8 million lbs. reported for the same month last year. Menhaden dominated the landings in the State during June, accounting for 97 per cent of the total. Shrimp and hard crabs followed menhaden in volume, with landings of hard crabs increasing 36 percent.

"Oregon" Makes Good Tuna Catch

The Fish & Wildlife Service vessel *Oregon* returned to Pascagoula on August 27 with a capacity load of prized yellowfin tuna. Harvey R. Bullis, Jr., chief of Gulf fisheries explorations, said the *Oregon* had a catch of more than 29 tons for the entire cruise. The fish averaged about 90 lbs. each, and the catch was regarded as conclusive evidence of the commercial possibilities for taking tuna.

The first part of the cruise was in a 10 square mile area about 80 miles south of Mobile, Ala., and the latter part of the cruise was about 40 miles southeast of the Mississippi Delta.

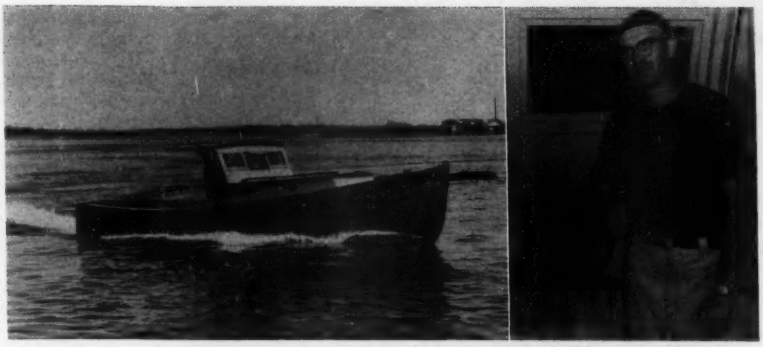
New Plant Using Crab Meat Scrap

The Sun Crab Co., one of the newest industries in Jackson County, is building a plant near Pascagoula at Helena to process scraps from crab meat packing plants into chicken feed. The plant will process approximately 8,000 lbs. of finished feed daily at the start of operations. Haynes Thompson, a partner, says the Company plans to experiment with other waste seafood products.

Gunter to Head Ocean Springs Laboratory

Gordon Gunter has resigned as director of the Institute of Marine Science, Port Aransas, Texas, and was to take over directorship of the Gulf Coast Research Laboratory at Ocean Springs on September 1.

Sixth annual blessing of shrimp fleet August 7 at Bayou La Batre, Ala. Total of 1500 visitors ate seafood dinner on the grounds and then inspected 200 shrimp boats anchored at wharf. It was believed to be biggest gathering of commercial fishing craft in South Alabama history.



35' x 10'6" lobster boat "Evandee", owned by Capt. Evans Doughty (right) of Cape Elizabeth, Maine. She was built recently by Harold Gower of Beals, Me., and is powered by a 130 hp. Nordberg Tarpon engine with 2:1 reduction gear. A speed of 21 mph. makes her one of the fastest lobster boats. Doughty plans to go mackerel netting in the Spring, and fishes 200 lobster traps during other seasons. He uses Plymouth rope and Plymouth Nylon heading twine, and the boat is equipped with 18 x 18 Michigan propeller, 1½" Monel shaft, Raytheon Fathometer, Ritchie compass and RCA telephone.

Maine "Eat-More-Lobster" Campaign Under Way

An intensive advertising campaign urging Maine people to eat more lobsters was started this month, in an effort to improve the market for lobsters, which are low in price and very plentiful at this time of the year. Maine lobster dealers have been urged to seek more markets, especially in the Midwest, and do more advertising during the period of high production.

Fisheries Commissioner Tupper and Gov. Muskie are interested in making a TV film if lobster industry members will contribute half of the $10,000 cost.

Good Tuna Season

Fishermen around Bailey Island have been enjoying one of the best tuna fishing seasons in many years. Hundreds of the giant fish have been caught and the price for them on the New York market has held up fairly well. The Bailey Island father-son team of Clayton and Bernie Johnson recently landed nine tuna in one trip, bringing their total for the season to 26.

The largest single-day catch of tuna reported in several years—a total of 16—was brought in to Bailey Island on August 9. Top catch came from the boat of Clayton Johnson, who landed 9 fish estimated to weigh 3,000 lbs. Other captains and their catches were William Munse, 3; Stanley Johnson, 2; James Shea and Jerry Leeman, 1; and Franklin Orr, 1.

The largest single tuna landed so far this season was reported on the third of August, when the crew of the Spruce Head boat *Thunderbird*, owned by Nathan Fuller, arrived with one which was estimated to weigh over 600 pounds. The fish was harpooned about 6:30 in the evening and was not captured and boated until the following morning shortly before noon.

Sardine Pack Low

On August 20 the Maine sardine pack stood at 717,000 cases for the season, less than one-third of last year's. According to Richard Reed of the Maine Sardine Industry, this year's herring shortage is the worst since 1939 when only 600,000 cases of sardines were packed in the entire season.

Chebeague Island herring seiners were reported doing exceptionally well early last month, but the majority of those engaged in seining in other sections of the coast have temporarily resorted to putting their lobster traps overboard, with the expectation of filling their herring seines later in the season as the fish school southeastward.

Lobster Festival Held at Rockland

Rockland was the scene last month of the 9th annual Maine Lobster Festival which was held August 5, 6, and 7. A total of 7,900 lobsters was served during the three-day event, and Birds Eye Division of General Foods donated 1,600 lbs. of ocean perch fillets.

On the final day of the Festival, Sunday, a memorial service was held for fishermen who had lost their lives at sea.

Change Name of Maine Sardine Tax Committee

As a result of law changes passed by the last Legislature, the Maine Sardine Tax Committee recently became the Maine Sardine Council. With the change of name also comes added responsibility for the group in administering the several hundred thousand dollar a year sardine tax.

The Council will have full direction, with the new Department of Industry and Commerce, successor to the Development Commission, assisting only in an advisory capacity. Named to the sardine group were Moses Pike and Lester Wass of Eastport, Milroy Warren of Lubec, John Tarbox of Gouldsboro, George Seybolt of Watertown, Mass.; Samuel Zwecker of Port Clyde and Calvin Stinson, Jr. of Birch Harbor. This group will confer with Agriculture Commissioner Fred J. Nutter, whose department is now responsible for the administration and enforcement of all laws pertaining to the inspection of sardine plants and processing operations.

"Pocahontas" Hauled by Sample

The dragger *Pocahontas*, owned by Harvey Gamage of South Bristol, was hauled out recently at Sample Shipyard in Boothbay Harbor, for bottom painting and checking of sheathing.

Sardine Research Program Under Way

An agreement between the Maine Sardine Tax Committee and the University of Maine for a cooperative sardine industry technological research program has been announced. The Committee's executive secretary, Richard E. Reed, said that work on several projects including an experimental quality control operation, already is underway.

The Sardine Industry's research director, Dr. Berton S. Clark, with several assistants, is handling the research work. The purpose of the project is to provide the industry with an aggressive program of research and development for fish handling, processing, quality control and packaging to help it compete successfully in the nation's fast-changing and expanding food market.

New Boat for Rhode Island Owner

The new 62-ft. dragger the *Bob-n-Barry*, built by Newbert & Wallace of Thomaston, Me., now is fishing out of Point Judith, R. I. She is owned by Capt. Carl C. Westcott of Narragansett, R. I., and is powered with a 165 hp. General Motors Diesel.

Building Lobster Boat for Capt. Davis

A 38' lobster boat is being built by Rockland Boat Shop, Rockland, for Capt. Manville Davis of Monhegan. She will be powered by a 120 hp., 1600 rpm. JMS Cummins Diesel with Capitol 2:1 reduction gear.

Louisiana Shipyard Building Steel Menhaden Boat

The Patterson Shipyard at Berwick has started construction of a 132 ft., all-steel menhaden fishing boat, the largest vessel the yard ever has built. The boat, which is for George Wallace of Morehead City, N. C., is to have two cabins above deck, one 30 ft. long and the other 35 ft. in length, sleeping accommodations for 24 men, with three staterooms and a spacious galley.

She will be powered by Twin Tandem 6-110 General Motors Diesels, and it is expected the vessel will be completed by the beginning of the Winter season. She will work off the coast of North Carolina, and return to Louisiana for the Summer season. The craft will carry a crew of between 18 and 20 men.

Shrimp Festivals Held

Shrimp festivals held recently included those at Violet where some 35 shrimp boats were blessed, and at Lafitte where about 110 shrimp vessels were blessed. Late in July the shrimp fleet at Caernarvon was blessed, at which time the *Miss New Orleans* was judged the best decorated boat.

Studying Shrimp Anatomy

Dr. Joseph Young, zoologist at Tulane University, is working on a two-year grant to prepare an atlas on the anatomy of the shrimp. He has finished the exo-skeleton material and is now working on the muscles. Then comes a study of the nerves, the circulatory system and glands.

Little is known of the shrimp's eating habits and sense organs, and it is hoped that through these studies much more complete information may some day be available.

Vessels Overhauled

Berwick Bay Shipyards completed repairs on two shrimpers last month—the *IHC* and the *Sister*, both 60 ft. long. Both vessels were painted, and shaft work and general maintenance repairs were completed.

Martin Heads Radiomarine's Gulf States Sales

G. I. Martin, who has been with Radiomarine Corporation of America and its predecessor company for the past 33 years, is the new regional sales manager for the firm in the Gulf region. This post, with headquarters in New Orleans, was vacated July 1 by the retirement of Julius A. Pohl, who has completed 43 years of service with Radiomarine.

Connecticut Study Aimed at Preventing Hurricane Damage

Stonington Harbor is one of two locations given highest priority by the Army Engineers in its study of how to reduce hurricane damage in Connecticut. The research, called for in a bill introduced by Sen. Prescott Bush of Connecticut will concentrate on finding solutions to the problems of minimizing loss of life and property in hurricanes as they hit the coast.

The study will concentrate on the wind-driven tides and waters, and it is possible the only solution will be modification of building codes or local action to restrict building in some areas. It is hoped the survey will be completed within two years and that recommendations will be presented to Congress as soon as the work has progressed far enough.

Stonington fishermen who have suffered heavy damage to their boats and equipment in past hurricanes are advocating that existing breakwaters in Stonington Harbor be restored to their former status and possibly that a series of breakwaters with openings where boats can pass, be constructed between Fishers Island, N. Y., and Watch Hill, R. I. to minimize the tidal action during storms. These suggestions will be included in the study to be made by the Engineers.

Dragger Bought by Longo

The *Lieut. Thomas Minor*, a member of the Stonington fishing fleet since she was built in 1943 at Stonington, was sold at the H. W. Sweet Boatyard in Greenport, N. Y. August 31 to Antonio Longo, operator of Longo's Dock in Stonington. The dragger has a gross tonnage of 34 and a net tonnage of 23 tons, and for the past six years has been skippered by Capt. Frank Serrano.

Storm Damage to Lobster Traps

According to lobstermen from Rowayton, hurricanes Connie and Diane washed a few lobster traps into shoal water, but those in deep water appeared to be all right. Considerable rope was broken by the wave action and a number of traps were lost by tangling on the bottom.

Lobstering, according to Eugene Peffers who buys from local lobstermen to fill his pound, has been a little better this year than last.

Proposed Fraser River Power Dams Would Harm Salmon

Discussions respecting the industrial development of the Fraser River watershed are giving grave concern to the salmon fishing industry. Scientists express fears that full power development of the Fraser and Thompson systems would have serious effects. The following comments on the subject are extracts from a statement made recently by Senator Thomas Reid, chairman of the International Pacific Salmon Fisheries Commission:

"The Commission, in planning for full rehabilitation of the Fraser River sockeye, has carefully analyzed the possible effects of the developing industrialization of the river basin on the sockeye. Our conclusion has been that the only insurmountable obstacle to the maintenance of the sockeye salmon would be the random hydro-electric development of the River's potential power resources. It is recognized that, if no substitute power source becomes available, the economic benefits of the food resource produced by the River must be balanced by impartial Government against the economic benefits derived from hydro-electric power.

"We are concerned first and most seriously with the effect of any dam, regardless of its height, on the upstream movement of mature sockeye. In 1954 an escapement of 1,250,000 sockeye passed up the Fraser River in 24 hours en route to the South Thompson River, and it is anticipated that in future years when the Quesnel run is restored similar phenomenal escapements to the Upper Fraser will occur. Even though the Hell's Gate Fishways are probably the most efficient in the world and approach hydraulic perfection, the 1954 escapement to Adams River was delayed approximately four days at this point. We already have mentioned the effect on the productive capabilities of sockeye of the prolonged delay in passing Hell's Gate prior to the construction of the fishways and it was adequately proven that most of the fish that were delayed 12 days or more at Hell's Gate did not reach their spawning grounds at all.

"If a series of dams were constructed in the Fraser Canyon and the Thompson River, the cumulative delay at each dam of the large escapements that are the mainstay of the rehabilitated resource would eventually destroy the affected populations. This would happen regardless of the heights of the dams and regardless of the effectiveness of the fishways constructed to pass the migrating fish."

This pair of Bristol Bay gill-netters, shown on trial run at Seattle, Wash., is the first of the 1955 fleet built by Commercial Marine Construction Co. of Seattle and Fletcher Bay Boat Works, Port Blakely, Wash. The boats will join the fleet of Libby McNeill & Libby. Gray Lugger Six-244 engines with 2:1 reduction gears, supplied by the Apex Marine & Equipment Co. of Seattle, power the boats.

Washington Fishermen Making Better Sockeye Catches

Improved late runs of sockeye salmon to the Fraser River system increased catches by American and Canadian fishing fleets to more than 1,500,000 fish by August 17. The fish were divided equally between the two countries' fishermen.

The total through August 15 was about 80 percent of the catch from the parent 1951 sockeye runs, a sharp gain from the 50 percent catch at the beginning of the month. Officials said that in numbers of fish the combined runs appeared to be the largest since 1913 on that cycle, except for 1951. Poor ocean-survival conditions resulting in smaller fish were blamed for reduction of the runs below the parent-year level.

On Cod Tagging Trip

The California Department of Fish & Game's 100-ft. research vessel *N. B. Scofield* went to codfish banks off the Washington coast in mid-August for tagging of true cod. Among those aboard the vessel was Dayton L. Alverson, biologist with the Washington Dept. of Fisheries.

Protest Unlimited Salmon Fishing by Japanese

Strong protests were registered at the meeting of the Puget Sound Gillnetter's Assoc. in Blaine last month, relating to unlimited salmon fishing being allowed to the Japanese in the ocean adjacent to Alaskan coastal areas. The Association officers were instructed to take any steps necessary to have this unlimited taking of salmon halted or corrected, and to work in conjunction with other interested organized groups to accomplish this end.

It also was brought out at this meeting that the gillnet industry of Puget Sound is overcrowded, and the limiting of licenses is a possibility. Presently curtailed to a four-day week fishery, action was taken to protest the outside seven-day week operation.

Chum Salmon Provides Clue to Migration

From the Washington State Dept. of Fisheries comes the story of a tiny chum salmon that swam 350 nautical miles this Summer to provide a new clue to migration patterns of salmon spawned in the Puget Sound Basin.

The mighty swim of the 12-inch salmon ended just east of Cape Caution in northern British Columbia waters July 18. The salmon had been tagged and put into the water June 16 at Point Defiance near Tacoma. The chum averaged 11 nautical miles a day during its 33-day trip. It was the first tangible proof that chums from Puget Sound streams swim far northward in search of food.

Alaska Salmon Pack Is Low

Although some Alaska districts have had a fairly good, even prosperous salmon season, in general fishermen and packers are concluding what has been a poor year. The total catch for 1955 was not expected to be much more than 2¼ million cases. One bright spot in the picture is that last year's pink salmon escapement gives promise of a better pink salmon catch next year in Southeastern Alaska.

Seattle Landings for August

During August, Seattle otter trawl landings amounted to 1,045,700 lbs., or an increase of nearly 350,000 lbs. over the July production. The catch was landed in 27 trips, with true cod leading the different varieties—221,000 lbs. Rockfish was second with 175,400 lbs., and ling cod was third with 152,400 lbs.

The halibut fleet during August landed 4,067,000 lbs. of fish with halibut production amounting to 3,842,500. The total landings were more than 900,000 lbs. over the catch for July.

Seattle fisheries receipts set a new record in 1954, with a total of 164,200,000 lbs., valued at $34,200,000 wholesale.

Seattle tuna receipts amounted to nearly 6½ million lbs., mostly frozen albacore from Japan.

Other receipts included 61,800,000 lbs. of fresh fish; 40,300,000 lbs. frozen fish; 3,200,000 lbs. fresh shellfish; 3,600,000 lbs. frozen shellfish; 3,600,000 lbs. cured fishery products; 2,100,000 lbs. livers and viscera; 30,300,000 lbs. fish meal; 12,800,000 lbs. fish oils; 1,800,000 lbs. fish solubles and 4,600,000 lbs. miscellaneous fishery products.

Record Number of Salmon Planted

A record total of 26,000,000 chinook salmon have been planted in Washington State waters, according to Robert J. Schoettler, State Fisheries Director. A total of 40,182,400 salmon of all species were planted during the first seven months of 1955. The young fish were released in Puget Sound, coastal and Columbia River area streams.

California Tuna Fishermen Accept Price Cut

The American Tunaboat Association and its two fishermen's unions recently announced a voluntary slash of $40 a ton in the price of raw tuna to canneries, which brings the domestic tuna price down to the lowest level since controls went off after World War II. The action was taken in an effort to meet Japanese competition. Although the fishermen, with the backing of some canneries, have tried to get the Government to put quotas on Japanese tuna imports, so far no help in this direction has been forthcoming.

Tuna industry leaders from Southern California recently attended a Washington conference with State Department officials regarding means of boosting domestic tuna sales. Participation of the Japanese in a market development program was one suggestion coming out of the talks. At present, the Japanese have about 30 percent of the American market.

Canners agreed recently that more aggressive promotion is necessary and that increased Government buying could straighten out the market. In Los Angeles the Quartermaster Corps has asked tenders on 387,600 dozen cans of whitemeat or lightmeat for delivery in the period from September to November. It is understood that the Armed Forces will use much more tuna now that other canned fish is higher in price. Efforts also are being made to get schools to buy over 500,000 cases, which would pretty well remove the surplus of skipjack.

An analysis of the cost of a case of tuna has been prepared by the American Tunaboat Assoc. of San Diego. Expenses of producing the fish represent almost 56 percent of the cost, the balance being the cost of processing.

Figures released recently by the American Tunaboat Assoc. show a considerable drop in tuna imports from Japan. Frozen tuna shipments were 7,525,000 lbs. in June, compared to 13,022,000 lbs. in June of last year. It is believed some of the reasons for this decline are the Japanese concern over possible quotas in the United States; an expanded domestic market in Japan caused by lower prices; and a slower American market.

Want Housewives to Buy American Tuna

Last month some 500 fishermen from San Pedro were to motor to San Diego to distribute thousands of leaflets requesting people to buy only American-caught tuna. The fishermen hoped that this type of a campaign would help them regain the U. S. tuna market that Japanese fishermen have been taking away from them.

Capt. and Mrs. Harold "Bud" Fry of Portland, Ore., aboard their 40' troller "Gannet", docked at Eureka, Calif., during the salmon season. Powered by a 165 hp. General Motors Diesel, the "Gannet" is equipped with a Loran set, has electric gurdies and anchor winch. The Frys, who spend eight months of the year on the craft, expect to end their season fishing albacore in Southern California or further south.

Also last month in San Pedro, Anthony Sokolich, secretary of the Fishermen's Union there, proposed that a Federal law be passed which would require canned tuna sold in the United States to be labeled "produced by American fishermen" or "produced by Japanese fishermen." He believes this would help housewives aid American fishermen by buying just the American-caught tuna.

Salmon Season Best in Years

Salmon boats from San Francisco to Crescent City, tied up for nearly two weeks as the result of a price dispute between Bay area fishermen and dealers, resumed operations following a settlement early last month. The price agreement called for a two-cent cut on the price of small salmon, from 29 to 27 cents per pound. Prices on other salmon remained the same; 40 cents for large; 32 for medium and 25 for silvers.

This salmon season has been described as the best in many years. An average day's delivery for the four fish companies in Crescent City was estimated at about 8,000 to 9,000 lbs., but in many cases the day's individual shipment surpassed this. Ted Baldwin of the Lazio Fish Co. said that his firm had shipped from 8,000 to 18,000 lbs. in one day.

An increase in the Eureka salmon fleet was predicted by one company official, when boats fishing albacore in Southern California returned because of a tuna price slash in that area.

Trawl Net Escapement Studies

Trawl net escapement studies were conducted recently in waters off Humboldt Bay by the State Division of Fish & Game research vessel *N. B. Scofield*. Investigations were made as to the size and number of immature fish escaping through the meshes of seines of various sizes. Aim of the State Division is to conserve the resource of immature fish without reduction in the catch of merchantable fish.

The *Scofield* spent two weeks taking test hauls along the Northern California coast before continuing north to spend an equal time in the area off the coasts of Oregon and Washington. Legal minimum size for mesh in seines is at present four and a half inches, to allow escapement of smaller fish. Mesh sizes above four and a half inches were used in the experimental operation.

Eureka Landings Show Increase

Landings of all types of fish for the month of June in Eureka showed an increase over May figures. Total catch for June was 1,442,300 lbs., against 1,036,300 lbs. Salmon landings were also higher in June—415,300 lbs., as compared to 237,600 lbs. in May.

Top bottom fish landings for the two months were dover sole with 379,200 lbs. in June and 354,200 lbs. in May; and rockfish, 165,700 lbs. in June and 156,700 lbs. in May.

Sardine Supply Same as Last Year

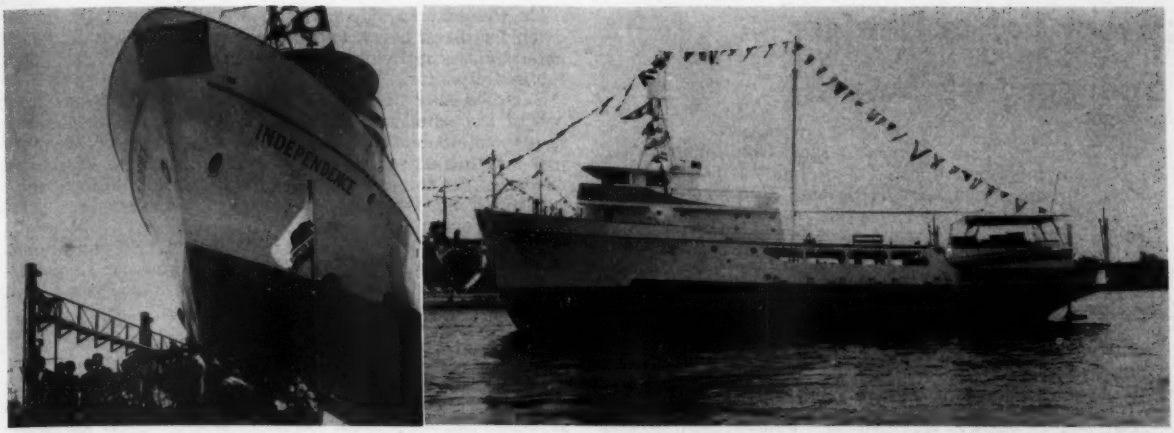
The Marine Research Committee in forecasting the 1955-56 sardine season estimated that about 300,000 tons of adult fish would be available for the commercial catch, of which about 150,000 tons could be caught. This figure is about the same as last season. Southern District, which is expected to do the bulk of the canning, opens October 1.

Crab Landings Down

Crab landings for the 1954-55 season in the Eureka area fell far below the catch for the preceding season, according to the Fish & Wildlife Service. Only 321,500 lbs. were received, compared to 1,098,800 lbs. delivered during the 1953-54 season. The figures follow the declining trend in crab catches noted in this area the past several years. The crab season opened in Eureka December 15 and closed July 31.

New Fish Processor Starts Operating

A new commercial fish plant, the Humboldt Bay Fisheries, opened late in July in the former Theodore Weissich



New 127' x 30'6" x 14'6" steel tuna clipper "Independence", with christening ceremony at National Steel & Shipbuilding Corp., San Diego, Calif. Designed by Wendell H. Calkins and skippered by Capt. Jay Melussi of San Diego, she has 960 hp. Fairbanks-Morse Opposed-Piston Diesel with 3:1 Western reduction gear, Goodrich Cutless stern bearing, 91", 5-blade Coolidge propeller, 6½" Monel tailshaft. The clipper has two 190 hp. Murphy Diesel auxiliary engines, Sperry magnetic compass pilot, Raytheon Fathometer, Tiger Brand wire rope and Fairbanks-Morse pumps. She is finished with Amercoat paint, uses Standard RPM lubricating oil, carries 345 tons of fish.

Fish Co. plant on the Eureka City wharf. Crab is expected to be a major product of the company, which will also handle dragfish and salmon.

Fishing for the plant at present is the dragger *Memories*, owned by Ralph Mason, and a number of salmon boats are being lined up. The new plant is owned and managed by William Werblow.

Vessels on the Ways at Eureka

Going on the ways in Eureka recently for overhauling, repairs or painting were the following vessels: the *Tokiwa*, a Eureka salmon and crab boat owned by Robert Hamblock; the *Marcheta*, Crescent City salmon and crab boat owned by Carl Brower; and the *Lulu*, a salmon and crab boat owned by Arthur Hawkins of Crescent City, all at Gillette's Marine Ways. Graham's Boat Basin and Marine Ways took in the *Besser*, a Eureka troller; and the Snider Fish Co. troller, the *Pisces*.

Oregon Makes Several Changes In Commercial Fishing Laws

Several changes in the Oregon commercial fisheries code became effective August 3. One major change in the code requires boats fishing commercially in waters of the Pacific to display fishing license numbers on the starboard and port sides of the vessel and on the roof of the pilothouse or cabin of the craft.

Another change provides a license and fee for longline and otter or beam trawl fishing in State coastal waters. The new law designates a $15 license for longline fishing and a $37.50 license for otter or beam trawling.

Commercially-taken razor clams may now be sold in all counties of the State during the entire year due to the repeal of a statute which limited sale of commercially-taken razor clams between June 20 and September 20 to counties bordering the Pacific Ocean. Land fronting or abutting State parks is no longer closed to commercial taking of razor clams.

The third shellfish change provides for the harvest of scallops by persons holding a commercial clam, scallop and mussel license. Final fisheries code change makes certain licenses valid for all areas of the State rather than for specific districts. Specific area licenses will still be required for some types of commercial fishing, primarily gill netting and set netting where authorized by law in coastal rivers.

Columbia River Chinook Salmon Run

Up to August 22 there was no evidence that this year's Columbia River fall chinook salmon run would be a failure. This was the conclusion reached by biologists of the Washington State Fisheries Department and the Oregon Fish Commission at a joint meeting of the two agencies in Portland recently. No change in the fall fishing regulations for the Columbia was recommended on the basis of the present findings.

Robert J. Schoettler, Washington Director of Fisheries, and Commissioners John C. Veatch and Robert L. Jones of the Oregon Fish Commission, advised biologists of the two organizations to continue keeping a close tab on commercial catches as the season progresses.

Resume Fishway Project

Construction of a fishway over the City of Seaside domestic water supply dam on the south fork of the Necanicum River was resumed this Summer. The project was started last Summer, but high water conditions prevented completion of the fishway at that time.

The new fishway will provide improved access for silver salmon and steelhead and cutthroat trout utilizing spawning and rearing areas above the Seaside dam.

Heavy 1954 Chinook Catch from Alsea River

The 1954 total commercial catch of fall chinook salmon from the Alsea River was the highest since 1942, according to information recently released by the Oregon Fish Commission. The catches have increased despite severe commercial fishing restrictions which have been in effect since 1948. The increase was believed due to sound, scientific studies which are providing information needed to manage the coastal fisheries properly.

Repairing Smith River Fishway

A stream improvement crew of the Oregon Fish Commission engineering division began repair work in early August on a damaged fishway over a natural falls on the Smith River near Gardiner. The Smith River fishway has been a hindrance to migratory fish passage since early 1954, when one wall of the structure was destroyed by floating logs during high water. The scheduled improvement will provide better access to approximately 30 miles of stream area above the falls for steelhead and cutthroat trout and silver and chinook salmon.

Other stream improvement work completed recently by the Fish Commission in the south coast area includes removal of an abandoned splash dam on Glen Creek.

Great Lakes Dealers Sponsor Fish Month

The Wisconsin Fish Dealers' Assoc. is sponsoring a fish month during September. Promotion of fish will be pushed through newspaper, radio and TV advertisements. Restaurants, taverns, food markets, breweries, home service departments of electric and gas utilities will participate.

Jerry I. Bolda of Milwaukee is promotion committee chairman, assisted by Robert Balkovic of Springfield, Ill., a Fish & Wildlife Service marketing specialist, and Lester P. Voigt, Wisconsin Conservation Commission Director.

Fall Season Brings Improved Catches

With the Summer season over on Lake Superior, where commercial pound netters did well on whitefish with lifts of as much as 2,000 lbs. nightly for a while, gill netters have started to get better yields of lake trout. Set hook operators were taking some fairly good catches, and lake trollers were doing nicely with both commercial and charter business.

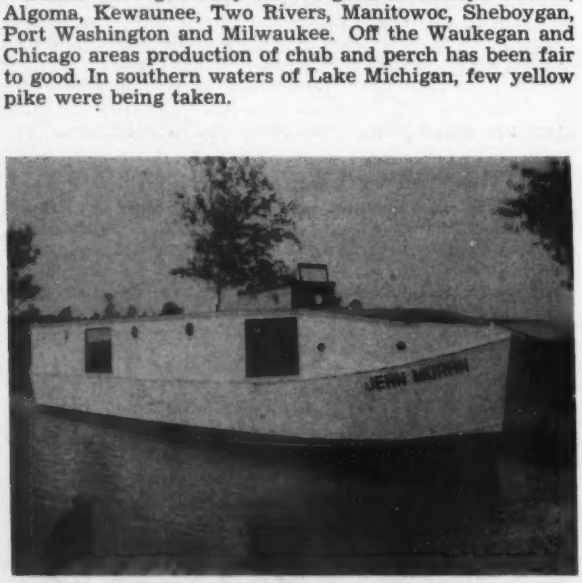
In the Apostle Island area trollers enjoyed many successful trips this past Summer. Minnesota trollers also chalked up a profitable charter season. Munising, Mich. trollers were showing up with some sizable fish, while Grand Marais trollers found their fish plentiful but smaller in size.

On Isle Royale in Lake Superior, the 19 commercial fisheries there are operating this year under special permit from the National Park Service, with good catches of whitefish and lake trout.

Commercial fishermen operating from Michipicoten Island, Ont. on Lake Superior, indicated they had a relatively lighter trout production. On whitefish they did fairly good, however.

In the Green Bay area, where yellow pike yields have tapered off, some nice hauls of perch, chub, carp, herring and menominees have been made. Perch netting on Ogontz Bay off Masonville, Mich. has been good. Heavy carp takes were made in Southern Green Bay.

Yields were generally fair to good at Baileys Harbor, Algoma, Kewaunee, Two Rivers, Manitowoc, Sheboygan, Port Washington and Milwaukee. Off the Waukegan and Chicago areas production of chub and perch has been fair to good. In southern waters of Lake Michigan, few yellow pike were being taken.



New 42' x 12' steel gill-netter "Jean Moran" of Grindstone City, Mich. She was built by Martin Machinery Manufacturing Co. of Bad Axe, Mich. for Russell Moran, and is powered with a 100 hp. Kermath. The vessel is finished with Pettit paint, and is equipped with New Bedford cordage and Linen Thread Co. Gold Medal nets.

On the eastern side of Lake Michigan the bulk of the catch has been perch and chub, herring, etc., with yields about fair. Improvement in the area, however, is looked for in October.

Saginaw Bay producers have turned to netting mixed fish of the usual species. A good herring showing under spotty conditions was reported, indicating herring are just starting to school for Fall spawning runs. Canadian fishermen in the far northern part of Lake Huron were getting some whitefish but nothing sensational. Carp, however, are plentiful and so are perch.

Fishing fleets on Lake Erie in Michigan, Ohio and Pennsylvania waters were producing good commercial quantities of usual species mostly in trap nets, and Canadian fishermen reported improved catches of pike, perch, etc.

Seek Commercial Ban on Brown Trout

At Washburn, Wis., sports fishermen are attempting to get local support in an effort to put German brown trout of Lake Superior back on the restricted list for commercial fishermen. Sports anglers once succeeded in having the brown trout put on the protected list for one year. The Conservation Commission, however, reversed itself at the end of that year and adopted a provision to permit commercial fishermen to take the fish of more than 20 inches with their nets.

Growth Faster in Female Yellow Pike

Studies of walleyes, or yellow pickerel, indicate that males grow slower than females and reach maturity at 13 inches, thereby setting a biological basis for the minimum size limit in the Michigan waters of the Great Lakes. Females, however, do not spawn until they reach 17 inches. Research on Little and Big Bays de Noc discloses that anglers take only 20% of the catchable fish.

Asked to Report Marked Trout

Producers who take jaw-tagged or fin-clipped trout are requested to notify the Michigan Conservation officials, or contact Tom Stauffer, Marquette Fisheries Research Station, 514 W. Kaye Ave., Marquette, Mich. Metal tags on jaws of fish should be returned to Stauffer. The marked trout are rainbows.

Fayette Fishing Fleet Blessed

The 7th annual blessing of the fleet ceremony was held at Fayette Harbor on Bay de Noc last month with the largest attendance in several years. Following the fleet blessing ceremony, a memorial service was held for those fishermen who had died during the past year.

Divers Study Walleyes

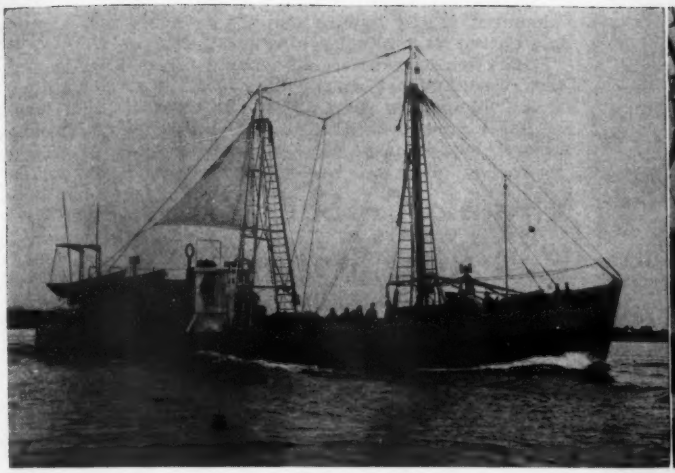
Conservation men were to equip themselves with aqualungs this Summer to discover factors that in the past have created walleye population booms in Northern Green Bay. Clifford Long, Fisheries Supervisor for the Michigan Dept. of Conservation, believes that if they can actually observe what's going on with the walleyes on the bottom of the lake, perhaps they can learn why walleye spawning fails or succeeds, and why the hatch dies or lives.

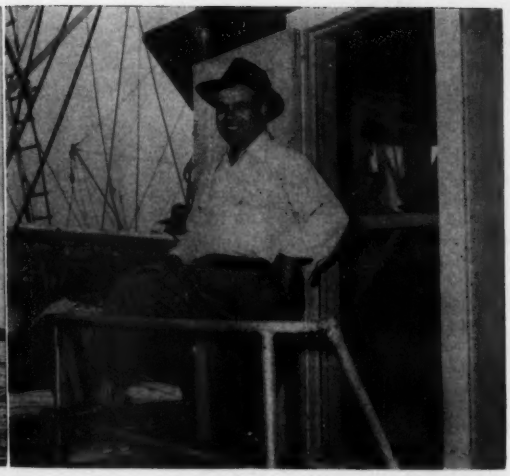
Walleye management experiments are being conducted in some inland lakes, where fry plantings indicate that planting success can be expected every three or four years.

Kokanees Would Make Good Food for Trout

In case the lamprey finally is wiped out and lake trout come back, it is believed that a fish known as the Kokanee would make a fine food fish for the Mackinaws. Even commercially, Kokanees are valuable. At Lake Pend Oreille, commercial fishermen take seven per cent of their total catch of Kokanee, and still there are plenty for everyone. The little salmon are very prolific, and probably could withstand the advance of the sea lamprey due to their small size.

West Virginia has introduced Kokanee into several of her lakes at very little cost.





The 98' dragger "Manuel P. Domingos", owned by United Fisheries Vessels Co., Gloucester, Mass., and powered with a 400 hp. Atlas Diesel. Above is her skipper, Capt. Joao S. Norte, while below is the vessel's Murphy Diesel winch engine. The craft formerly was known as the "Paul Howard", and is a converted mine sweeper. She is equipped with Bowers 110-volt batteries, 8 hp. Deseco Lister Diesel auxiliary unit and New England winch.

Gloucester Has Record Fish Catch in July

The port of Gloucester had its biggest fish month in history in July, according to the Fish & Wildlife Service. It announced an estimated total of 48 million lbs. of fish landed, including so-called "trash fish". This was 13 percent above the previous record month, July, 1954. The July catch this year meant over a million dollars to boat owners, skippers and fishermen.

July production in Gloucester included 21,727,000 lbs. of trash fish; 11,500,000 lbs. ocean perch; 12,200,000 lbs. whiting, including 2,100,000 lbs. of steaked whiting. The balance was mixed fish.

Fishermen Have Lucky Escape

Four Gloucester fishermen had a narrow escape last month when two oil drums of explosive material came up in the cod end of their drag at sea, exploded and caught fire on deck. The men were aboard the 47-ft. fishing boat *Anna Guarino*, Capt. James Bertolino.

The fishermen were able to save the net, but the fish had to be thrown overboard. It later was revealed that the drums were picked up in an area recognized as a Navy dumping ground.

First Seine Mackerel Landed

Gloucester had her first trip of seine mackerel on August 26, when Capt. Gerome Frontiero with his seiner *Lone Ranger* landed 10,000 lbs. of good-sized fish off the Isles of Shoals. Capt. Frontiero's brother Charles in the *Nova Luna* also brought in about 3500 lbs. the same day.

Boats Get Radar Equipment

Several RCA Model CR-105A radar units have been installed recently on Gloucester and Boston fishing vessels by Louis Posner Marine Radio of Boston. They include the Boston trawler *Maine*, owned by Booth Fisheries Corp.; and the Gloucester draggers *Joseph & Lucia*, Capt. Joseph Brancaleone; *Salvatore & Grace*, Capt. Eugene Aiello; *American Eagle*, owned by Piscitello Brothers.

Daggett of Birds Eye Moves to Gloucester

D. H. Daggett, fisheries production manager of the Birds Eye Division, General Foods Corp., has moved his headquarters from the Boston Fish Pier to the firm's Gloucester plant.

South Carolina Beach Fisheries Under New Regulations

Commercial fishing on the strand, a controversial subject for some years between property owners and fishermen on Ocean Drive, came to a head recently with a meeting between both interested parties at the regular bimonthly council meeting. The result was a continuance of fishing as in past years and a 14-point proposed ordinance to raise the standard of the fisheries from a health standpoint.

Commercial fishing on the Grand Strand attracts thousands of spectators annually. The boats are launched in any kind of weather by fishermen who drop the nets from the stern in a semi-circle. With one end of the 1,000 ft. net held by 20 or more fishermen as rigidly as possible, a truck attached to the other end gradually pulls in the slack and draws the net into shore.

At Ocean Drive the fishing will be limited to a four-block business area, but at Crescent Beach and Cherry Grove Beach, fisheries will operate at the usual stands.

State's Crab Meat Meets Test

South Carolina is one of the few States whose fresh crab meat shipments meet new stringent requirements in New York State. Another State is Washington.

North Carolina Shipyard Completes Two Shrimpers

Two new Hatteras Trawlers, the 68' *Miss Cain Hoy*, owned by O. R., Theodore T. and Francis F. Murphy, all of Charleston, S. C., and the 50' *Alda W. II*, which is owned by Wilbur Register of Shallotte, N. C., made their trial runs out into the Atlantic Ocean recently. Their operation was observed by Governor Luther Hodges of North Carolina and members of the State Board of Conservation and Development, who were special guests of Morehead City (N. C.) Shipbuilding Corp., builder of the trawlers. They were aboard the *Hellion IV*, 110' yacht owned by R. C. Kirchofer, president of the shipyard.

The *Miss Cain Hoy* is powered with a General Motors 6-110 Diesel with 4½ to 1 reduction gear and 52x40 four-blade Columbian propeller. She has 3,000-watt Onan Diesel generating set with tailshaft to drive Jabsco pump with clutch. Electronic equipment includes 76-B Apelco radiotelephone, Bendix DR-7 depth recorder and Metal Marine automatic pilot. Fuel capacity of the trawler is 4200 gallons.

The hoist on the *Miss Cain Hoy* is a Hathaway No. 72823 shrimp winch standard. The owner received two spools, each of which had 1,200' of ½" Wickwire tow cable, and 900' of ⅜" Wickwire cable on the try net drum. There also is a double stay from main boom to mast.

The 50' *Alda W. II* is powered with a General Motors 6-71 Diesel with 3.75 to 1 reduction gear, and has 40x32 four-blade, right-hand Michigan propeller. She is equipped with Apelco 76-B, 50-watt radiotelephone, Bendix DR-16 depth recorder, Onan generating set and Surrette batteries.

Old Net Stakes Are a Menace

Old fish net stakes left by commercial fishermen continue to be an increasing menace to boats using the State's navigable waters, according to Ben E. Douglas of the Dept. of Conservation and Development.

The Department's Commercial Fisheries Division recently concluded a four-week net stake removal project on the Pamlico River near Washington, and in a comparatively small area took up 2,360 net stakes. However, funds are not available for this work to be continued, and fishermen are being urged to remove the stakes.

Landings Reports Now Being Issued

The U. S. Fish and Wildlife Service in cooperation with the North Carolina Department of Conservation and Development, is now issuing monthly reports which contain data on the landings of fishery products.

Production of commercially-caught fish and shellfish at North Carolina ports during June 1955 totaled 24.3 million pounds. Menhaden accounted for 81 percent. Other leading species were hard crabs (2.3 million pounds) and shrimp (1.8 million pounds).

Virginia Crabbers Do Well After Storms

Tangier crab potters have been doing well since the hurricanes. According to reports, they are capturing from 8 to 12 barrels of hard crabs a day and selling them for $4.00 a barrel.

In the first week of August, crabbing was good for the Tangier peeler crabber. A big run of crabs was on, and prices for peelers had shot up from 2 to 3 cents. But the coming of the two hurricanes, Connie and Diane, temporarily slowed down the industry. Crab pounds lost some of their floats and a good many peelers.

Oyster Loss from Hurricanes

A loss, variously estimated at from one to three million dollars, has taken place among the oysters in the upper Rappahannock River due to flooding with fresh water following hurricanes Connie and Diane. Oyster inspector Willard Gresham said recently that there did not seem to be any damage among the oysters below Beach Creek.

A committee of the Rappahannock River Planters Assoc., together with W. Collin Chilton and James B. Martin, members of the Virginia Fisheries Commission, Charles M. Lankford, Jr., chairman of the Commission, W. Tayloe Murphy, member of the House of Delegates, and Dr. J. L. McHugh, director of the Virginia Fisheries Laboratory at Gloucester Point, met recently with Gov. Stanley to discuss the heavy mortality. Dr. McHugh pointed out that in his opinion no permanent effects will be present in the surviving oysters.

Hampton Roads Area Landings

During the month of August trawlers in the Hampton Roads area brought in 170,000 lbs. of fish, an increase over the July receipts of nearly 120,000 lbs. Pound net landings amounted to 1,019,200 lbs., a gain of some 267,000 lbs. Leading variety in pound net production again was croaker with 601,000 lbs., followed by sea trout, 157,000.

Two Hatteras Trawlers making their trial runs—the 50' "Alda W. II", owned by Wilbur Register of Shallotte, N. C., and the 68' "Miss Cain Hoy", whose owners are O. R., Theodore T. and Francis F. Murphy, Charleston, S. C. Both vessels are powered by General Motors Diesels, and were built by Morehead City (N.C.) Shipbuilding Corp.

Oyster Convention

(Continued from page 18)

Health officials have had no basis on which they could judge the conditions under which they were grown and packed. In some cases the Food and Drug Department has confiscated shipments for high bacterial scores, but there is little or no basis for judging the quality of shipments in which the score is low.

"Representatives of the U. S. Public Health Service visited Japan and studied their shellfish producing areas for several weeks. It was their conclusion that while many of the areas are fine, their system and conception of sanitary control are so totally different from ours that there is no practical way at present whereby these shipments could be certified."

Nelson added: "We have received a suggestion from the Pacific Oyster Growers Association that local and regional oyster associations be affiliated with our group. It would benefit all concerned if such organizations as the Pacific Association, the Louisiana Association and the Maryland Oyster Packers Association could be affiliated with us. It would make us stronger when we represent the industry in Washington, D. C."

Japanese Seed Oyster Industry

"The Seed Industry of Japan" was discussed by Malcolm Edwards, president of the Pacific Coast Oyster Growers Association, Seattle. Mr. Edwards, who has spent a number of Winters in Japan observing and supervising the packing of oysters for shipment to the West Coast of this country, illustrated his talk with two motion pictures.

Edwards disclosed that the West Coast oyster industry of the United States, small compared to that of the East Coast, needs to import 70,000 cases of seed from Japan each year to supply its present annual production of 1,500,000 gallons. He said that the West Coast, where the first oyster plantings were made in 1926 and the first big harvest obtained in 1933, has a potential for producing 2,200,000 gallons of oysters. The seed business, he declared, "is the lifeline of our industry."

Seed processing in Japan is "entirely a hand operation from beginning to end," Mr. Edwards observed. He disclosed that there are two seed growing associations in Japan, comprising 15,000 individual seed growers, with a third to be added this year. They supply seed for the Japanese and export market—the major part going to the West Coast of this country.

"Our basic problem," said Edwards, "is teaching the Japanese what is required in quality and pest control." He disclosed that seed is caught in catching racks and hung from stationary racks until about September 15 when it is taken and placed on hardening racks in a horizontal position at the tidal level. Hardening slows down the growth of the seed oysters.

The above procedure is carried out because the bottoms are heavily infested with drills. Other Japanese growers, using floating cult racks in the open sea, produce the highest quality seed of any areas.

Seeds are next brought to the processing site and washed in baskets to remove debris, drills and clean them for visual inspection. Contracts with the growers specify that there be ten spat on each shell. Each string, Edwards said, has an average of 75 shells. More broken shell than whole shell is exported.

Next the seed goes to the size selection table, and then to the breaking table. The percentage of shell in the broken state for export is 80 percent. Close to three bushels of seed are placed in each of 70,000 packing cases which must be handmade by the laborers. Certain cases are opened by the U. S. inspectors to study the contents and count spat.

The cases then are placed in water on holding racks to await transshipping. Mr. Edwards said that it takes 24 hours for the steps between the hardening rack and the holding rack. Transshipping involves about 10-12 days with cases laid under mat covering and frequently watered on the ships. Finally, there is the arrival in the U. S. and inspection by customs and the Health Department.

New equipment at F. F. Lovejoy plant, East Norwalk, Conn., for loading oyster shells aboard boats to be planted on Long Island Sound setting grounds. A tractor and bucket loader without tines were used this season to remove 16,500 bushels of oyster shells from the pile, and two men at the hopper fed oyster shells on the conveyor belt, which deposited the shells in the boat. A crew of three did the complete shore operation instead of the five men needed when shovels and wheelbarrows were used. Total time for loading came to 20 hours, whereas formerly two weeks were required.

May Require Better Washing of Shellstock

"Proposed Changes in Public Health Service Manual for Sanitary Control of Harvesting and Processing of Shellfish" were discussed by Eugene T. Jensen, acting chief, Shellfish Sanitation Section, Public Health Service. He commented: "A major change in the manual concerns shellstock washing. Muddy shellstock is a primary cause of unclean plants. In addition, there is evidence that bacteria contained in the mud may be responsible for high bacteria counts in shucked oysters.

"It is true that bacteria in the bottom sediments might have little public health significance. However, where a bacteriological standard is used, this additional count becomes important. The bacteria contributed by the mud easily could make the difference between acceptance or rejection of a given shipment of oysters, since ordinary bacteriological examination would not distinguish 'mud bacteria' from 'oyster bacteria'.

"Since mud is more easily washed from the shellstock at the time of harvesting, the primary responsibility for washing should rest with the harvester. But this may not be laid down as a hard and fast rule, because in some areas shellfish are harvested during low tide, when there is no water on the beds. Obviously, some provision will have to be made for handling shellfish during freezing weather."

Stresses Adequate Sanitary Surveys of Waters

The importance of "adequate sanitary surveys" of oyster areas before condemning or approving them for market purposes, was stressed by Harold F. Udell, marine fisheries sanitarian with the New York Conservation Department. He emphasized the need for up-to-date official records attesting to the fact that shellfish growing areas are free from dangerous concentrations of bacteria. As long as authorities are able to certify both areas from which shellfish may be taken and dealers who may distribute these shellfish, he said, "the industry will continue to enjoy the confidence of the public."

J. William Ryland, chief fisheries inspector for the Virginia Commission of Fisheries, said that very little difficulty has been encountered in policing closed areas because of the excellent cooperation of the oyster indus-

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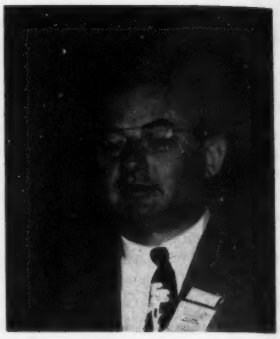

Two vice-presidents of the Oyster Growers and Dealers Association—Royal Toner of Greenport, N. Y., left, and William R. Woodfield, Galesville, Md.

try and individual growers. He called attention to the importance of educating people in the industry on dangers of violating closed area regulations.

Objectives of Shellfish Sanitation Laboratory

Principal objectives of the Public Health Service's shellfish sanitation laboratory at Pensacola, Fla., were listed as follows by C. B. Kelly, head of the laboratory:

1. To conduct fundamental investigations in the sanitary bacteriology and biology of shellfish and shellfish-bearing waters, with a view to the evaluation and improvement of presently-accepted practices.
2. Collaborating with Federal control agencies, principally the Shellfish Sanitation Section, Public Health Service, to assist and guide the various States in their program of sanitary control of shellfish.
3. In cooperation with these same agencies, to develop and evaluate improvements in current commercial practices in the harvesting, processing and marketing of shellfish.
4. To investigate laboratory methods for the examination of shellfish and shellfish bearing-waters for the purpose of evaluating current methods and developing new techniques.

Other speakers on pollution control in shellfish growing areas included Malcolm B. Edwards, president of the Pacific Coast Oyster Growers Association; and Maurice LeBosquet, assistant chief of the Water Supply & Water Pollution Control Branch, U. S. Public Health Service.

Observations on Crabs as Oyster Predators

"Crabs as Predators of Oysters in Louisiana" was the title of a paper presented by R. Winston Menzel of Florida State University and Sewell H. Hopkins of A. & M. College of Texas. They found through observations and experiments that blue crabs kill adult oysters only if they are sick or dying, but do destroy an appreciable number of spat.

Stone crabs were found to be very important enemies of oysters of all sizes, and observations and experiments showed that even small crabs (2 inches or smaller) could kill large oysters. Population studies disclosed that, in certain areas in Louisiana, stone crabs are potentially more destructive to oysters than oyster conchs. Larger mud crabs compared favorably with stone crabs in ability to kill oysters.

Trapping of Oyster Drills

Drs. Jay D. Andrews, Willis G. Hewatt and J. L. McHugh of the Virginia Fisheries Laboratory at Gloucester Point reported on the results of their oyster research. Dr. Andrews described results of recent studies on oyster drills or screwborers in the York River. Of the two kinds of drills found in Chesapeake Bay, one always was thought to be so scarce that it was considered of little importance. However, recent experiments with traps on Wormley's Rock in the York River resulted in twice as many drills of this kind being caught as of the more common variety. These experiments showed also that this

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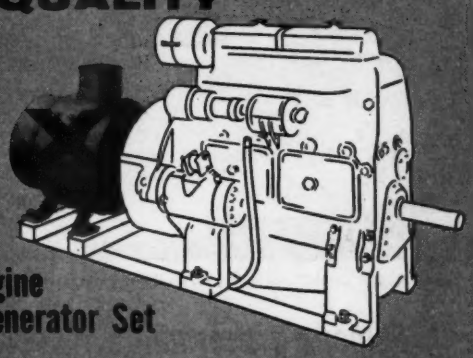

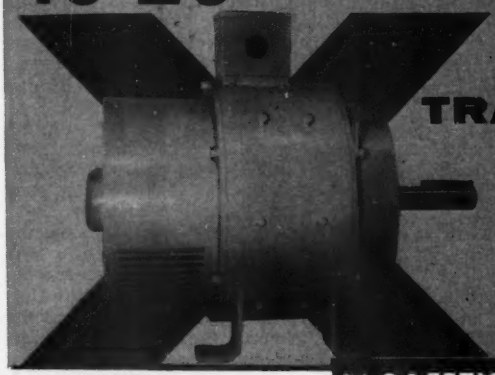

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borer differs greatly in its habits from the common form, and is probably more destructive.

Dr. McHugh discussed experiments on the efficiency of traps in catching oyster drills. The traps, made of galvanized chicken wire, with seed oysters for bait, become less and less efficient the longer they are left on the bottom. The catch per day of the common variety of drill is almost as good when the traps are fished weekly as when they are lifted every day. Left on the bottom for two weeks, however, they catch many fewer drills per day.

For the less common drill variety, such traps are most effective when fished daily. The catch per day is only about one-quarter as good when the traps remain down for a week. The experiments also emphasized the destructive nature of the lesser-known borers, and cast doubt on the efficiency of the wire trap for eliminating drills.

Feeding Preference of Southern Drill

A paper dealing with laboratory experiments regarding feeding preference of the Southern oyster drill in relation to oyster meats was presented by Charles R. Chapman, Fish & Wildlife Service biologist stationed at Pensacola, Fla. He also discussed amounts of oyster tissue remaining at the time the valves of the oyster gaped due to the drill and the drilling site preference.

Mr. Chapman said that very little has been or is being done in the way of effective control measures to check the depredations of the Southern oyster drill. A large portion of the oyster bottoms of the Gulf are commercially barren of oysters because of this snail.

J. G. Mackin of the Texas A&M Research Foundation commented: "There is a lot of field data to indicate that the oyster fungus *Dermocystidium* increases in intensity of infection in high salinity. However, in the laboratory we get no difference in development in high and low salinity—which seems to contradict the field data. We have decided that the main factor is not low salinity but the flushing action of fresh water coming in."

Relation Between Oyster and Starfish Setting

Dr. V. L. Loosanoff, director, and C. A. Nomejko, both of the Milford, Conn. Fish & Wildlife Service Laboratory, and J. B. Engle, Chesapeake Laboratory, collaborated in a paper entitled "Relative Intensity of Oyster and Starfish Setting in Long Island Sound, 1937-1954". The discussion, based on 18 years of starfish research along the Connecticut coast of Long Island Sound, was illustrated by slides.

The main point presented was that no relation has been found between the intensity of setting of oysters and starfish. Graphs showing heavy starfish setting when oyster setting was light, and vice versa, were displayed. It was pointed out that research suggests salinity is not of significance, nor is density of parent populations.

The paper suggests that specific larval diseases, special food requirements and presence or absence in the water of certain presently-undetermined substances, may be responsible to a large extent for the fluctuations in the intensity of setting of starfish and oysters in different years.

Others who spoke on oyster predators at the final general session were Dr. A. F. Chestnut of the North Carolina Institute of Fisheries Research; Aage M. Christensen and John J. McDermott of the New Jersey Oyster Research Laboratory.

Hard and Soft Clam Studies

The method by which a young hard clam adapts itself to a bottom was described by Dr. M. R. Carriker of the University of North Carolina. He said that the young clam spends about seven days floating before it sets on the bottom.

"The clam starts out as an organism of about two-tenths millimeters in length and grows up to seven millimeters." Dr. Carriker reported. He continued: "Its transition from a swimming animal through structural changes to the anchor stage and on to the stage of bur-

Captain Webb's "Jackbil" was built by M. W. Willis & Son, Marshallburg, N. C.

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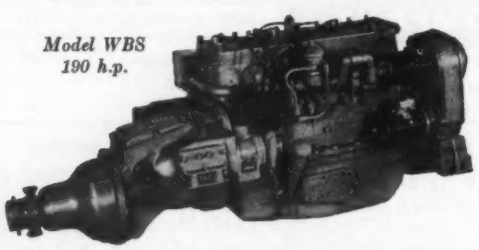

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rowing in bottoms has permitted it to survive in its present numbers."

"Preliminary Report on Soft Clam Studies in Maryland" was the subject taken by J. H. Manning, Maryland Department of Research & Education. The speaker declared that clams are "a valuable local resource in Maryland," and discussed operation of clam dredges and their possible use for the harvesting of oysters. He pointed out that the Chesapeake clams take two years to grow, compared to ten years in Maine, and have only a remarkable low five percent breakage.

Several speakers discussed spawning and growth of oysters and clams, including H. C. Davis and P. E. Chanley of the Fish & Wildlife Service laboratory at Milford, Conn., and Alton H. Gustafsen of the Maine Sea and Shore Fisheries Department. Biological differences between different species of oysters were described by R. Winston Menzel of the Oceanographic Institute, Florida State University, while Gordon Gunter of the Institute of Marine Science, University of Texas, spoke on "Studies of Oyster Remains to Determine How Long They Have Been Dead."

Canning and Freezing

John Dingee of the Can Manufacturers Institute related the canning industry to the shellfish industry, and described new types of cans and current research on cans. He said that there are 65 can companies producing food cans, 25 of these making fish and shellfish cans.

"Problems in Freezing Southern Oysters" was the topic discussed by C. Lee of the Fish & Wildlife Service's College Park laboratory. He outlined research being done at Tulane, Florida State and Louisiana State Universities and the Fishery Technological Laboratory at the University of Maryland. Among the observations Mr. Lee made was that Southern oysters generally have a shorter iced storage life than Northern oysters.

Resolutions Adopted

Resolutions adopted at the convention included the following:

1. Regrets for the death of William M. McClain, second vice-president of the Oyster Growers and Dealers Association, who contributed so much toward "betterment of the oyster industry." Mr. McClain was head of Wm. M. McClain, Inc., Philadelphia, which he started in 1934.
2. Regrets on the death of Dr. A. E. Hopkins, scientist.

Long Island Sound Has Heavy Oyster Set in Some Areas

Even though vast quantities of fresh water and debris have flowed from tributaries into Long Island Sound, Dr. Victor Loosanoff of Milford, Conn. Fish & Wildlife Service laboratory reported on August 23 that a second wave of oyster setting had taken place in the Sound. The last series of collectors removed for examination on August 29 revealed that a setting of heavy intensity was in progress in the Bridgeport area, and it is believed that this section as well as some isolated beds in other parts of the Sound, have collected one of the heaviest sets in years.

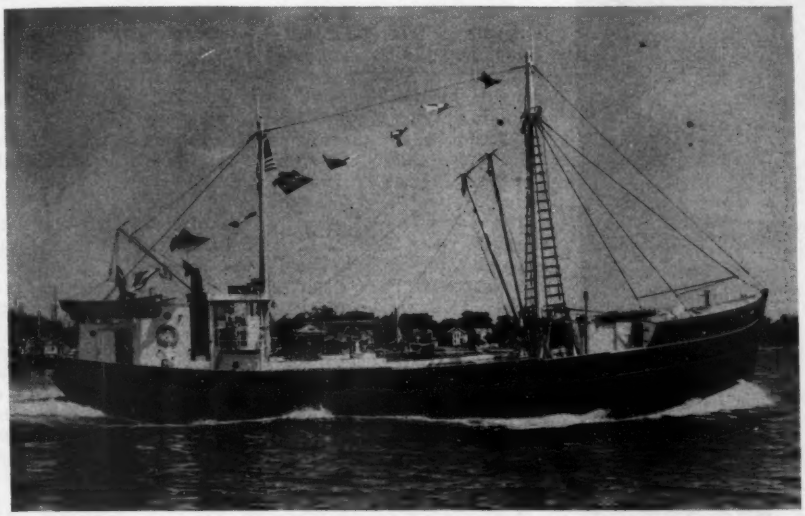
The fact that setting of oysters has been taking place under extremely stormy conditions and during days of unusually heavy river discharge, indicates that oyster larvae are rather hardy organisms.

Landings for June Show Gain

Landings of food fish in the Marine District of New York during June amounted to slightly over 3.8 million lbs., valued at $693,000 to the fishermen. Compared with the catch of a little less than 3.8 million lbs. of food fish, valued at $549,000 for the same month of last year, this was a gain of almost 2 percent in volume and 26 percent in value.

Food items showing significant increases in landings were scup, sea trout, striped bass, whiting, lobster, hard clams and sea scallops.

Here's Our Latest Scallop Dragger



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Florida Sponge Industry Shows Signs of Recovery

The Greek sponge fishing fleet from Tarpon Springs is beginning to return to the Southwest Florida Gulf Coast in numbers, the captains explaining that sponges are starting to recover from the red tide damage.

The sponge boats are currently fishing off Pavilion Key and are making a relay port of Everglades City where their harvests are transferred to trucks for faster hauls to markets at Tarpon Springs. According to Capt. John Danapas of the motor-sailer *Eleni*, this permits fishing for months at a time without the interruptions of long boat trips home.

It is understood that plans are under way to bring about 100 young sponge divers from Greece to help in the revival of the sponge industry in the Gulf. Mike Gianaras, member of the Sponge Improvement Committee, explains that most of the young men in Tarpon Springs considered as good diving prospects now turn to other trades.

The Sponge Committee is seeking young men from Greece who are capable of diving as deep as 150 ft. Sponge boats now look for sponges in about 60 ft. of water. Gianaras said younger men could open up new fields, and there are at least a dozen boats which would put to sea if they had divers.

Titusville Crab Canning Plant Leased

The Hudgins Fish Co., Inc. of West Palm Beach has leased the crab canning plant and equipment which has been operated in Titusville for many years by George Scobie, Jr. The Hudgins Company planned to begin operations on August 29 with J. E. Parrott as manager. It was expected that six men would be employed in gathering crabs from the Indian River and Indian Lagoon.

To Market Seafood Under Carnation Label

Aquafoods Corp., Tampa, is the name of a newly-formed company which will market a complete line of frozen and canned seafoods under the Carnation Co. label. Jaxon O. Hice, president of the new firm, formerly headed SeaPak Corp., and more recently was president of Shoreline Enterprises. He has announced that Aquafoods Corp. will link the marketing operation of more than 30 seafood producers.

The new firm will stress controlled quality fish and shellfish products, and has announced that they will conduct an extensive advertising and publicity campaign to develop a consumer franchise for Carnation Seafoods. Hice's sales goal for the first year is $50 million.

"Greece" Sinks in Tampa Bay

The 40-ft. fishing vessel *Greece*, owned by Johnny Boromei of Tampa, is a total loss after sinking at the mouth of Tampa Bay recently. Capt. Ray Pond beached the vessel on Egmont Key after hitting an old piling which tore a hole in the bottom. The four crewmen waded ashore.

Grasso Managing Hibbs Plant

The Hibbs seafood processing plant in St. Petersburg is now being managed by Charles Grasso, grandson of Walter Hibbs, who retired from the business May 1. Mr. Hibbs had operated the seafood plant, which was established in 1889 and is one of the oldest seafood houses in the South, since his early teens. Hibbs sold his last deep-sea boat, the *Niki*, August 1.

Trawler "Peace II" Repowered

Shelley Tractor & Equipment Co. at Key West has repowered the trawler *Peace II* with a Model D318 Caterpillar Diesel with 3:1 Twin Disc reduction gear. The vessel is owned by Hyman & Hopkins of Marathon Seafoods, Marathon, Fla.

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Yearbook of World Fishery Statistics Now Available

A comprehensive picture of world fisheries, which makes global and regional analyses possible, is provided by the 1952-53 "FAO Yearbook of Fishery Statistics", published recently by the Food and Agriculture Organization of the United Nations, Rome, Italy. Compressed in 250 pages and 69 tables is a mass of statistical information gathered from more than 160 different countries. Copies of the Yearbook (Part I) can be obtained direct from FAO, Rome, Italy, ($3 (15/-) a copy, post free).

The Yearbook was first published in 1947 by the Fisheries Division, FAO, and has since then been gradually expanded in size and scope until this year it is published in two parts. Part I, dealing with production, has now appeared; Part II, which will deal with trade, imports and exports, will be published later in the year.

Part I is divided into four sections: catch and landings, utilization, fishing craft, and historical summaries. Catch and landings are dealt with in tables which not only give the estimated total world production of fish, crustaceans, mollusks, etc., but analyze the catch by groups of species, fishing areas, continents, regions and countries.

World Fish Catch Has Increased

It is interesting to note, for example, that the total world catch of all fish and shellfish species long since has recovered from the effects of World War II and, at the estimated figure of 27,000,000 metric tons for 1953, is now about one-fifth greater than it was in 1938. It is estimated that African countries produced about 470,000 metric tons of fish before World War II, but by 1953 production had reached an estimated 1,540,000 metric tons, an increase of more than 220%.

North American fish production was about 3,150,000 metric tons in 1938; by 1953 it had increased to about 3,450,000 tons or nearly 10%. But perhaps the most impressive increase of all is that made by European fishermen who, it is estimated, caught about 5,470,000 metric tons before World War II and now catch about 7,160,000 tons (1953 estimated catch).

The United States is second among the fish catching nations of the world, Japan being the first. The actual figures show that Japan catches 4,577,000 metric tons a year (1953 returns) compared with the United States landings of 2,385,200 metric tons. The Japanese are now catching more fish than they did before World War II.

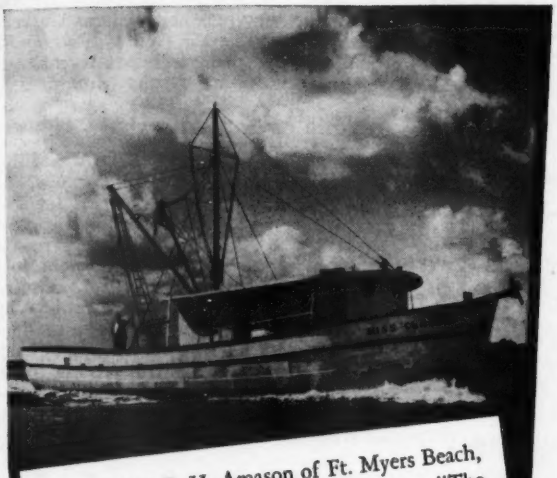
A breakdown of the United States figures for 1950 show that the Pacific area produced the greatest yield—687,300 metric tons, followed by New England with 456,400 metric tons. Figures for other sections, in metric tons, were: Gulf, 258,800; Mid-Atlantic, 223,000; Alaska, 218,800; Chesapeake, 172,000; South Atlantic, 118,300; Mississippi and tributaries, 48,000; lakes, 32,200.

Herring Caught in Largest Volume

The humble herring still forms, together with the sardine and anchovy, the largest single catch, an estimated 6,500,000 metric tons of the total 27,000,000 tons. But not only is this the biggest single catch, it is also bigger than the comparable yield before World War II.

The significant increase in processing fish and fish offal to produce fish meal and other products, which has been a noticeable feature in recent years, is reflected in the section of the Yearbook dealing with utilization of the catch. Of the total world seafood production of approximately 27,000,000 metric tons, the Yearbook shows that 11,000,000 or two-fifths are put on the fresh fish market, 7,000,000 metric tons or one-quarter are cured, and 4,000,000 tons or nearly one-fifth are used for reduction purposes.

In Africa only one-tenth of the catch is sold on the fresh fish market, one-fifth being canned, and no less than three-fifths being used for reduction purposes. On the other hand, North America provides an example of fairly even disposal of the catch.



Here's what G. H. Amason of Ft. Myers Beach, Fla., owner of the "Miss Claudia" says: "The crew likes the Danforth* fine, and have stopped using the anchor furnished with the boat. They say they have other boats tied up to them when it blows and have never yet slipped anchorage . . . all of us heartily recommend the Danforth* anchor."

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Danforth* Standard	2½-S	4-S	8-S	13-S	22-S	40-S
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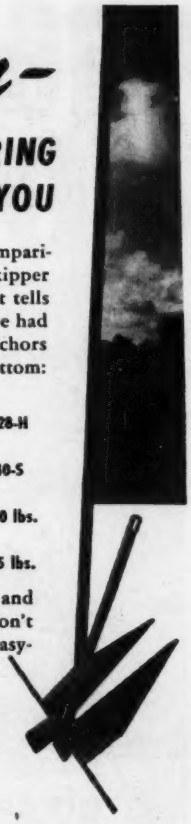
Stockless Type	50 lbs.	100 lbs.	160 lbs.	250 lbs.	465 lbs.	575 lbs.

The point we're making is that it's the *design* and not the *weight* that makes holding power. So don't trust that heavy old bower too much—get an easy-to-handle Danforth* and really be sure.



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Wilfrid O. White

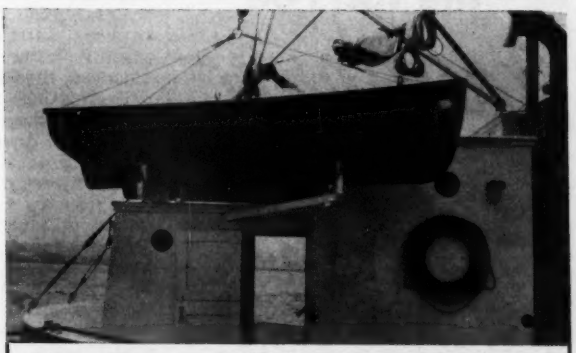
Wilfrid O. White of Wilfrid O. White & Sons Inc., Boston, died August 12 at Martha's Vineyard, Mass. at the age of 76. His forebears have been shipbuilders at Cowes, England ever since the late 16th Century. His father went to Australia about 1860 to start a new shipyard in Melbourne, where Wilfrid White was born. While still in his teens, he sailed "before the mast" to England and then to America, where he became acquainted with George W. Eldridge, the originator of the *Eldridge Tide & Pilot Book*.

In 1901 he went to Glasgow where he studied navigation, ship's magnetism and compass adjusting under Sir William Thompson, Lord Kelvin, returning to be the first professional compass adjuster in this country. He was associated with the old Boston ship chandler, Charles C. Hutchinson, until 1910 and then went into business for himself.

In 1918, after service as a U. S. Naval Officer in World War I, he commenced manufacturing magnetic compasses and binnacles, the business being incorporated the following year as Kelvin & Wilfrid O. White Co., with himself as president.

Among the achievements of his professional career were the first commercial installation of a radio direction finder in this country, the invention of a special sun compass used by Admiral Byrd in his Arctic exploration, and the invention of the spherical compass, rated one of the great steps in magnetic compass history. Recognized as one of the country's foremost authorities on marine navigation, he served for nearly 40 years as master of navigation on the trial trips of new ships built at leading East Coast yards. He was responsible for getting the magnetic compass rose printed in degrees as well as in points on Coast Survey charts.

The White business will be continued under the direction of his sons, W. Gordon White and Robert E. White.



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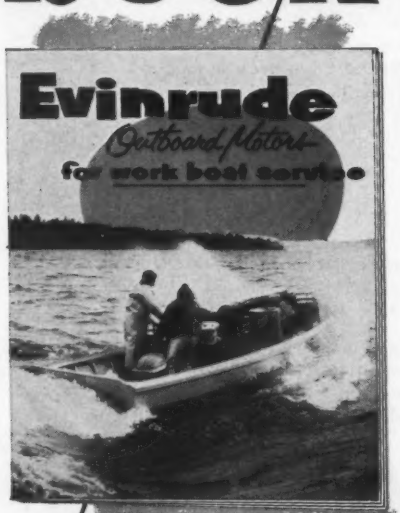

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Rhode Island Expects Big Scallop Crop

Thomas J. Wright, chief of the State Division of Fish and Game, reported recently that this year's scallop crop may equal the lush harvest of 1953, on the basis of a survey of the set in Point Judith Pond.

Conservation officers surveying the pond recently found scallops in great numbers, and the set in the pond east of Great Island was particularly heavy. They learned that scallops farther up Point Judith Pond from the breachway are not as large as those in the pond off Great Island between the Island and Snug Harbor, and east of Great Island.

Urges Higher License Fee

An increase in the license fees for shellfishermen to provide a special fund for a continuing shellfish conservation program was proposed again recently by John L. Rego, director of the Dept. of Agriculture and Conservation. Concerning the proposal, the director said he would like to see such revenue restricted for the purpose of developing and conserving the State's natural resources. He recalled that during the past year the General Assembly made available $25,000 for a program to transplant quahaugs from polluted to clean waters. Rego said there are hundreds of thousands of bushels of quahaugs in polluted waters which could be transplanted to clean waters for subsequent harvesting after the shellfish had cleansed themselves.

He further suggested that commercial fishermen take an active part in the development of a conservation program which ultimately would directly benefit the shellfishing industry by providing a more abundant source of quahaugs. Rego said his department plans to transplant 30,000-40,000 bushels of quahaugs from the polluted Providence River to clean areas. Last year 33,000 bushels were transplanted from that River.

Heavy Oyster Set in Pond

A phenomenal set of young oysters has formed on the shells deposited in Charlestown Pond by the State Dept. of Agriculture and Conservation, according to John L. Rego, director. Technicians of the Fish and Game Division found the heavy set when they returned to the pond, into which 1,500 bushels of oyster shell were deposited in the Spring. One shell had 157 young oysters attached to it.

Biological Study of Ponds

A two-year study to determine exactly what goes on biologically in Charlestown and Green Hill Ponds, both salt water, has been undertaken by the Narragansett Marine Laboratory of Rhode Island University. Dr. Robert J. Conover, who will direct the project, hopes to make a progress report by next Summer.

Role of Laboratory

Dr. Charles J. Fish, director of the Narragansett Marine Laboratory, recently described the role the laboratory can play in restoring the bay and surrounding waters to maximum productivity. He listed the following as important matters requiring attention: pollution, failure to maintain free passageway to important tidal pond breeding and nursery areas, destruction of food organisms and undersize fish by continuous scraping of the bottom with trawls and dredges.

New Jersey Bans Crab Traps in Bay

Commercial crab fishermen along the Delaware Bay have received warnings from State officials to cease using crab traps. The traps, set by the crabbers, are attached to lines and buoy markers which have become entangled with propellers of passing small boats.

The law provides two methods for crabbing—one with layout lines or trawl lines for which no license is needed, and the other with rod, hand line or hand scoop, for which a license is necessary.

The law does not apply to the individual with the small type wire basket designed to catch one or two crabs at a time, but to commercial traps which measure about four square feet. Officials estimated that from 200 to 250 such traps can be counted in the bay at one time. Crabbers who depend upon this shellfishing industry for a living are expected to register strong protests against the restriction.

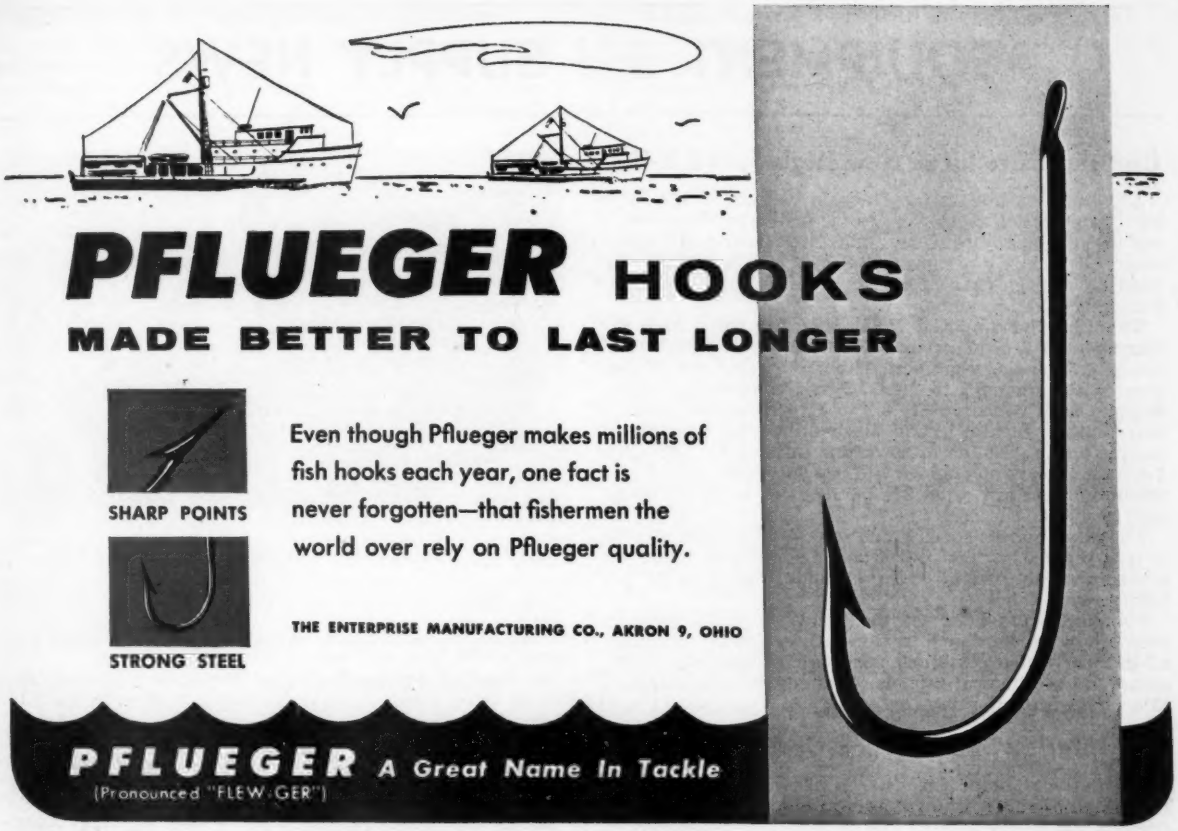
Landings for June

Landings of fishery products at New Jersey ports during June totaled 76.9 million lbs., compared with 85.6 million lbs. reported during the same month last year. A decline in menhaden landings during this June accounted for the general drop.

Food species showing gains in landings and percentage increases were bluefish, sea trout or weakfish, lobster and surf clam meats.

Menhaden Boats Get Radar

Several menhaden vessels owned by the Atlantic Navigation Co. of Port Monmouth, N. J. recently were equipped with Type 1500 Raytheon radar. Those vessels were the *Promised Land, Calcasieu, Rockaway, Mattie H. Phillips, Mermentau, E. Warren Edwards, H. R. Humphreys, Elmo,* and *Fish Hawk.*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SHARP POINTS
STRONG STEEL
Even though Pflueger makes millions of fish hooks each year, one fact is never forgotten—that fishermen the world over rely on Pflueger quality.
THE ENTERPRISE MANUFACTURING CO., AKRON 9, OHIO
PFLUEGER A Great Name In Tackle
(Pronounced "FLEW-GER")

Use of Underwater TV

(Continued from page 13)

be expected at depths to 25 feet. A period from 9:00 in the morning to 3:00 in the afternoon, with favorable atmospheric and hydroscopic conditions, was found to be optimum for work with the vidicon television system. Effectiveness of the television camera may be sharply reduced by molecular diffusion of light or by suspensions of organic and inorganic matter in the water. This may be somewhat offset through the use of water contact lenses.

At depths in excess of 30 to 40 feet, where color tends to go to shades of blue and green, white or yellow indicated the greatest persistence for visual observation of trolled lures, otter boards, and trawl nets. Due to the refraction of light, lens coverage was reduced by approximately 25 percent while the camera submerged. The use of a wide-angle lens afforded greater facility in viewing, with a minimum blurring of image, in most instances over limited distances.

Early Experiments

Early experiments were conducted by simply lowering the camera housing overside to depths of 40 feet. The addition of metal or wooden fins or rudders to the watertight housing allowed it to be towed at speeds up to 3 and 4 knots while submerged.

By mounting the camera in a fixed position on a submersible sled with directional or stabilizing chains, a towed object could be viewed at comparable speeds. The speed of the vessel and the setting of vertical and horizontal stabilizers on the sled controlled the distance and attitude of the vessel to the camera, and the camera to the object. In this manner a towed net might be viewed from the front, the top, or laterally at different angles.

An alternate simple arrangement for observation of trawl nets was affixing the camera housing to a trolley and lowering it down the length of the towing warp. By this means good front views were obtained of trolled lures, trawl nets, and otter boards at depths to 40 feet.

Future Development and Use

The size of any submersible television camera unit is of importance for ease in handling and maneuverability under field conditions. An extremely desirable feature for an underwater television vehicle would be some scanning facility for the camera in both azimuth and elevation. The ability of the unit to hover, to be placed on the bottom, or to be propelled at speeds in excess of 3 to 4 knots, also would be of great value. The gear research unit at Coral Gables now has under construction a prototype of such a submersible television vehicle which will afford some scanning facility for the camera. An improved remote iris control also is being developed.

The value of underwater TV as an aid to investigations in marine biology and in limnology has been shown. In addition to gear research work in the commercial fisheries, it may prove to be of assistance in the delineation and harvesting of clam beds and of oyster and scallop beds. Closer views might be obtained of bottom types, bottom formations, and of fishes in their natural habitat.

Water temperatures, current flow, turbidity, and other oceanographic data related to the fisheries might be directly monitored. One might reasonably expect that further experience will expand considerably the scope and variety of possible underwater TV observations. Within the limitations of the "closed" television system, the suitability of the equipment for a particular problem should rest principally on mechanical application.

EQUIPMENT and SUPPLY NEWS

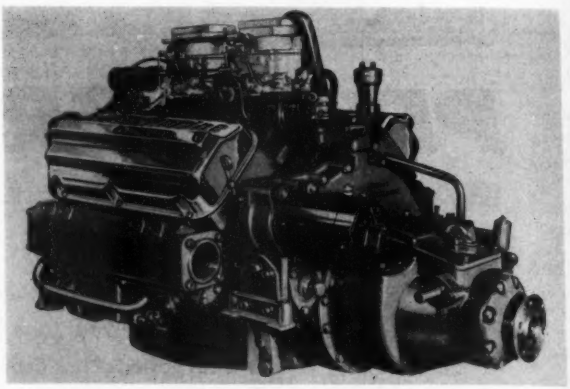
Chrysler Introduces New High-Speed V-8

Chrysler Marine Engine Division has added the Imperial V.250, rated at 250 hp., to its fast-expanding line of marine engines. Twin four-barreled downdraft carburetors, a specially-designed camshaft and a unique "opened up" design deep-breathing manifold help attain the high speed performance.

The Chrysler Imperial V.250 is a 331 cubic inch displacement V-8 built around the Chrysler hemispherical-design combustion chamber. The new engine can be supplied with either 8.2 to 1 or 7.2 to 1 compression ratios. Engines which incorporate 8.2 to 1 compression ratio require either regular grade automotive-type gasoline or marine white gasoline of 80 octane minimum. The 7.2 to 1 compression ratio engines will use gasolines of 72 octane minimum, and are rated 235 horsepower using an 80 octane gasoline.

The new engine's specific fuel rate at wide open throttle is less than .5 pounds per brake horsepower hour. Its horsepower to weight ratio is under 4.5 pounds per horsepower.

Standard equipment on the Imperial V.250 includes such items as hardened crankshaft, tri-metal bearings, all-gear driven accessories, positive displacement water pump and mechanical tappets. The engine uses standard 22½ inch wide mounting centers.



Chrysler Imperial V.250 marine engine, which is rated 250 hp.

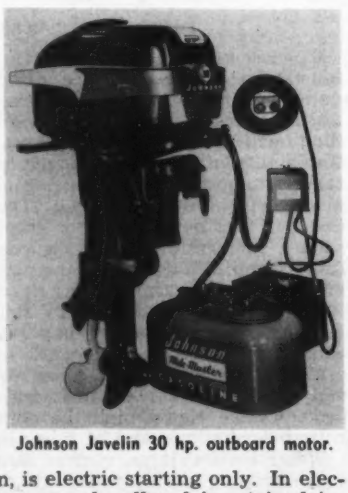
New Interlux Super Touch-Up Varnish

International Paint Co., Inc. is offering a new Super Touch-Up Varnish, known as Interlux No. 100, which dries in one to two hours. The varnish was developed to answer the demands of boat builders for a touch-up varnish to be used on rush work where time and weather are the governing factors.

For touch-up purposes, the new product should be used only on small areas, but can be used on new or bare wood as a priming coat for any of the other Interlux varnishes. The varnish sets up so quickly that it can be applied in damp or humid weather.

Johnson Offers 30 hp. Outboard

Top news in the Johnson Motors 1956 line is a 30 hp. engine being manufactured in three models, one of them a de luxe version called the "Javelin." Other new Johnson motors are of 7½ and 15 hp. These, with the familiar Sea-Horse 3, 5½ and 10, give Johnson a "3 to 30" range to match varying requirements in outboard usage.



Johnson Javelin 30 hp. outboard motor.

The 15 and the standard 30 are manufactured in both manual and electric starting models. The third version of the 30, the customed-styled Javelin, is electric starting only. In electric starting models, the manual pullcord is retained intact for emergency use.

Johnson's Javelin, basically toned in lustrous holiday bronze, is trimmed in high-polished stainless steel. A unique feature is concealed controls, hidden but readily accessible behind the grilled face of the motor itself. All models in the '56 Johnson line will be holiday bronze and spray white, and will have a distinctive styling.

Mechanical advancements in the 1956 Johnson outboards bring easier manual starting in motors in the 3 to 15 hp. range; on the 15 and 30 electric-starter models a lighter, smaller and "hotter" starting unit both reduces drain on the battery and lessens over-all weight; and the fuel-saving device which operates automatically affords a substantial gas line saving in cruising speeds of the 30.

All models except the Sea-Horse 3 have full gear range (forward, neutral and reverse), twist-grip throttle, up-and-off hood completely removable, and full silencing equipment with suspension drive. All except the 3 are engineered for snap-on attachment of remote controls.

Osco Catalog on Ford Engine Convo-Kits

A new and attractive 16-page catalog which has been released by Osco Motors Corp., 3627 N. Lawrence St., Philadelphia 40, Pa., describes in detail and illustrates its Convo-Kits for Ford, Mercury, Lincoln and Jeep engines. These kits include every part needed to convert the above engines from automotive or industrial work to marine use. It is claimed that any mechanic can do the job easily by following the step-by-step instructions.

The new two-color Osco catalog also describes marine reverse and reduction gears and special accessories which are available for the engines, such as instrument panels and tachometers. There are many diagrams of the engines, plus photographs of fishing craft powered with Osco-Ford motors, including Maine lobster boats and a Great Lakes fishing tug. The catalog explains in detail Osco's "Circuit-Flo" manifolding, which guarantees double preheating of cooling water before it enters the cylinder block.

Also available from Osco are bulletins on factory-built Osco "Marined" Ford V-8 and 6-cylinder engines, as well as an Engine Analysis and Propeller Recommendation Form.

Booklet on Caterpillar Filter Research

In "Filter Research, How and Why", a new booklet issued by Caterpillar Tractor Co., Peoria, Ill., the story behind the development of oil filters is told. This eight-page booklet starts at the Caterpillar test stands, carrying through testing in engines in the laboratory and the field to the final design. It points out that engine life depends in a large measure on effective oil filters to keep harmful abrasives away from vital parts.

Gladding-Hearn Shipbuilding Organized

A new organization, Gladding-Hearn Shipbuilding Corp., has been formed to operate from the site of the old Crowninshield yard in Somerset, Mass. Officers of the firm are Preston R. Gladding, president, and Richard C. Hearn, vice-president and treasurer.

Both men have had considerable experience in the boatbuilding business. Gladding is a member of the Society of Naval Architects and Marine Engineers, and a registered professional engineer.

Facilities of the new concern include a 60' x 60' shop building, 50 x 60 construction shed, drafting room, mold loft and 100-ton railway extending into 14 feet of water on the Taunton River. Operations will feature the design and construction of steel work boats up to 150 feet in length.

Patent Granted on Sudbury Sky-Vent

Herbert J. Atkinson, director of Sudbury Laboratory, South Sudbury, Mass., has been granted a patent covering the Sudbury Sky-Vent. While this accessory has been on the market for nearly three years now, (under patents pending), complete letters patent now has been received covering all phases of design and material.

The unique Sky-Vent maintains a constant flow of fresh air while a boat is moored, or underway—even with hatches closed. It keeps out rain and spray at all times, and prevents rot and mildew even when the boat is tied up. The Sky-Vent is made in three different sizes: 9", 12" and 18" diameter, and its rugged dome may be painted.

Hill Heads Detroit Diesel's Florida Sales

Royce A. Hill

The Detroit Diesel Engine Division of General Motors has appointed Royce A. Hill as manager of Florida Diesel Engine Sales, the Division's branch covering most of the State of Florida. In his new capacity Mr. Hill will head Detroit Diesel's industrial and marine sales and service activities in Florida with headquarters in Miami and a branch in Jacksonville. He succeeds E. G. Duerk who died suddenly in May.

Mr. Hill is a native of Columbus, Indiana, and joined Detroit Diesel in 1944 as a sales engineer. In 1947 he was transferred to Texas as a sales representative where he served in Texas, Oklahoma and Louisiana until his present appointment. Roy Kuhns, manager of the Jacksonville operation under Mr. Duerk, will continue to assist Mr. Hill in the same capacity. Mr. Dale Skoog will continue as service manager with his office in Miami.

Raytheon Reorganizes District Offices

A reorganization of sales and service districts of Raytheon Manufacturing Company's equipment marketing division has been announced by Daniel J. Webster, marketing manager. "With this new district organization, Raytheon is better able to serve the local market for marine electronic equipment and other Raytheon products within each district," said Mr. Webster.

The reorganization establishes three new sales and service districts with headquarters in Baltimore, Md.; Atlanta, Ga.; and Kansas City, Kan. Headquarters for other sales and service districts are in Boston, New York, New Orleans, Cleveland, Chicago, Seattle and Los Angeles.

Managers for the three new districts will be Roger Mackay, Atlanta; Edward Keesler, Baltimore; and W. J. Monroe, Kansas City. Other new district manager appointments include Joseph C. Profita, Chicago; Emile J. Rome, New Orleans; and Howard H. Ganson, Jr., Seattle.

New Radiomarine Portable Direction Finder

New portable direction finder by Radiomarine.

Latest addition to the line produced by Radiomarine Corporation of America, 75 Varick St., New York 13, N. Y., is a portable direction finder. Known as the Golden Guide, the instrument combines a radio direction finder, marine radiotelephone receiver, and broadcast receiver which can be operated from its self-contained battery pack or 115 V. AC-DC line current. These features make it suited for use on larger craft or on the smallest outboard boats as either a navigation instrument or entertainment receiver.

Some other outstanding features of the new product are its portability (weighs only 13½ pounds including batteries), small antenna (extends only 2 inches above the cabinet), high sensitivity and low cost. It has a null indicating meter mounted on the top of the cabinet which can be used by the operator in conjunction with the audio signal to obtain accurate signal bearings when being used as a navigation instrument. In addition to taking bearings on radio beacons, broadcast stations, radiotelephone-equipped boats, and shore stations, this direction finder also can be used for homing.

New Universal V-Drive Marine Engines

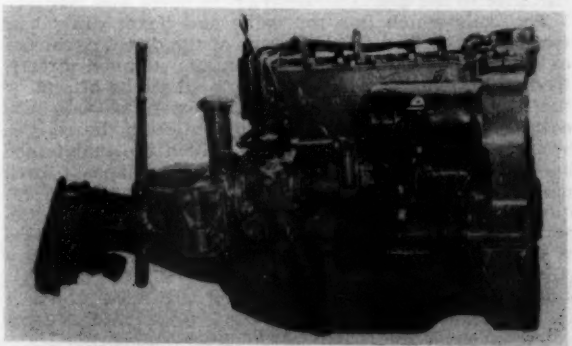
To make the application of small marine engines more practical for small boats, particularly those originally built for outboard power, Universal Motor Co., 535 Universal Drive, Oshkosh, Wis., has developed two small marine engines with integral V-drives. These two new models are designed around Universal's 25 hp. Atomic Four and 65 hp. Unimite Four.

In the V-drive model only 8-15/16 inches are added in the case of the Atomic Four, while 9-1/16 inches are added to the Unimite Four. Weight of the lightweight engines is increased by only 34 and 49 lbs. with the V-drive unit.

Through use of Universal V-drive engines, it is possible to install an inboard engine in the extreme aft end of a small hull. This is advantageous because these hulls are designed to carry the bulk of the weight of the propulsion equipment at or on the transom.

All type hulls from 14 feet up can take the Universal V-drive unit. It is a complete power package and provides push button starting and a full electrical system. The entire assembly is totally enclosed in one compact gear-driven self-lubricated unit that needs no adjustments.

Special thrust bearings take the high propeller thrust with ample reserve capacity. Universal V-drive is fully water-cooled with sustained high-speed operation causing no overheating. Since the unit is mounted integrally with the engine at the factory and the shafting supported rigidly by the drive housing, alignment is assured.



65 hp. Universal Unimite Four with integral V-drive.

It's **TOBIN BRONZE** shafting for this 500th shrimp trawler

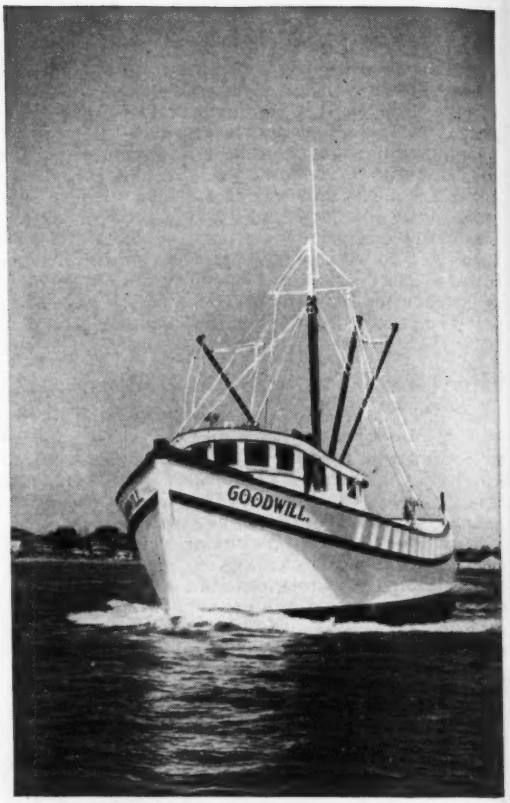
by Diesel Engine Sales, Inc.

The "Goodwill" was the 500th shrimp trawler built by Diesel Engine Sales, Inc., St. Augustine, Fla., a long-time user of Tobin Bronze* shafting and other Anaconda alloys. This trawler is 63 tons gross and 30 tons net; it is 67 feet long, with a beam of 18½ feet, and draws 6½ feet of water.

Its 3" x 24' Tobin Bronze shaft will deliver power from its 120 hp engine, dependably in all kinds of weather. Tobin Bronze resists sea water corrosion. It is tough and strong, yet it "gives" enough under sudden jars to lessen the chance of damage to bearings and housings. Each shaft is accurately turned for smoothness and specially straightened to keep vibration at a minimum.

Tobin Bronze is only one of the ANACONDA family of marine brasses and bronzes, which includes Tempaloy* Shafting (for high-speed, heavy-duty work) and Everdur* Copper-Silicon Alloys for fastenings and fittings. The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass, Ltd., New Toronto, Ont. 55137

*Reg. U. S. Pat. Off.



The Sign Of The Finest Value In Propeller Shafting

ANACONDA®

MARINE BRASS AND BRONZE

Pacific Tuna Clipper Design

(Continued from page 15)

and small enough to minimize the effect of the free surface in the tank on the vessel's stability.

Refrigeration of the Catch

Another great problem of the tuna clipper is the preserving of its catch from the time the first tuna is caught on the fishing grounds to the long time later when, after the trip home, the fish is discharged at the cannery. In the last decade it was found that the large and cumbersome brine coolers could be eliminated and the refrigeration of the fish accomplished by means of just the ammonia coils which line the inside of the tanks. These coils are now specified at 6 or 8 in. spacings, rather than 10 or 12 in. spacings formerly used in conjunction with the brine coolers. Agitation of the brine through the fish is accomplished by means of a small 2 or 3 hp. brine circulating pump mounted in the shaft alley, one for each well and box, which circulates the brine from the bottom of the tank to the top.

The coils which line the wells and boxes draw heat from the brine and fish by means of the direct expansion of ammonia in them. This ammonia is supplied directly from a large ammonia receiver, located in the aft end of the shaft alley, through automatic expansion valves at each well. The ammonia gas is drawn from the coils in any one of three suction headers which are maintained at three different suction pressures by means of back pressure valves corresponding to the temperatures required, (1) to chill sea water and perform the initial chilling of the tuna, (2) to freeze the tuna in heavy brine at from 20° to 25°F. and (3) to maintain the tuna "dry frozen" at about 10°F.

The three suction headers are piped through manifold valves to motor driven reciprocating type ammonia compressors, which are located in the upper engine room. The number of compressors may vary from three to six and their total refrigeration capacity varies from 35 tons to 200 tons. The hot gas discharge from the ammonia compressors is piped to two large condensers, usually of a vertical tube flooded type especially developed for the tuna clipper, which are located on the main deck just ahead of the deck boxes. These condensers are cooled by circulating sea water which in the tropical waters fished by the tuna clipper may have a temperature of 85° to 90°F. The condensed ammonia in the bottom of the condenser then flows by gravity to the ammonia receiver below in the shaft alley.

The hot tropical waters where the tuna clippers fish are particularly corrosive to underwater fittings and sea water lines. Monel fastenings are used on underwater fittings, copper nickel heat exchangers are installed, Monel pump shafts and Monel propeller tail shafts are used (the largest Monel tail shaft in the world is installed in a tuna clipper). The hot tropical airs do little to cool the engine room packed full of engines and machinery, and so, usually, oversize electric motors are installed on important pieces of machinery as a precaution against their overheating.

Design Influenced by Tuna Clipper Crews

The crews on tuna clippers, though mainly of Portuguese extraction, also include other nationalities such as Japanese, Italians, Slavonians, Scandinavians, and the tuna clipper development has been subject to the influence of all these peoples. It is these fishermen that have instilled the most fascinating and engaging facets of character into the tuna clipper, and they have, I think, been the real force behind its development and success.

Cannerymen long ago learned that, with but few notable exceptions, the cannery-owned boat was never successful. It was the boat owned by the fishermen themselves that consistently found and brought back the tuna, and the canneries wisely encouraged good fishermen to own their own boats, helped to finance them and cooperated with them in every way.

BOAT CATCHES

For Month of August

Hailing fares. Figure after name indicates number of trips.

STONINGTON, CONN.

America (14)	24,700	Little Chief (11)	16,700
Averio (14)	5,700	Marise (8)	4,800
Bette Ann (17)	33,100	Mary H. (13)	7,600
Carl J. (8)	22,800	New England (1)	400
Carol & Dennis (6)	11,700	Old Mystic (17)	25,900
Carolyn & Gary (15)	21,200	Our Gang (1)	300
Connie M. (17)	26,100	Pvt. Frank Kessler (2)	2,100
Fairweather (18)	30,100	Rita (10)	66,200
Five Sisters (11)	7,400	Theresa (1)	4,100
Irene & Walter (18)	32,400	William B. (16)	31,500
Jane Dore (14)	13,100	William D. (13)	20,600
Lisboa (15)	29,500		

NEW BEDFORD

Adventurer (3)	58,900	Julia DaCruz (2)	64,400
Annie Louise (4)	19,000		
Annie M. Jackson (2)	54,000	Katie D. (3)	157,500
Austin W. (2)	63,000		
		Lera G. (1)	20,000
Barbara M. (3)	56,300	Lorine III (2)	58,000
Bernice (2)	11,500		
		Marie & Katherine (1)	17,200
Capt. Deebold (2)	24,500	Mary Tapper (2)	61,800
Carl Henry (3)	70,500	Midway (3)	96,600
Charles E. Beckman (4)	42,500	Molly & Jane (3)	34,500
Charlotte G. (3)	56,800		
Christina J. (2)	69,500	Pauline H. (3)	260,500
Comber (1)	18,000	Phyllis J. (3)	39,600
Connie F. (2)	60,000		
		Roann (1)	23,000
Dauntless (3)	50,500	Roberta Ann (3)	51,000
David James (3)	13,000	Rosemarie V. (2)	35,900
Driftwood (1)	2,500		
		St. Ann (2)	34,300
Ebenezer (3)	12,900	Sandra & Jean (2)	53,000
Elva & Estelle (2)	30,700	Sea Rambler (3)	54,200
Eugene & Rose (2)	49,000	Shannon (2)	50,000
Evelina M. Goulart (2)	66,900	Solveig J. (4)	152,000
		Sonya (3)	37,500
Gannet (3)	148,500	Stanley B. Butler (2)	120,500
Georgina Sylveira (1)	27,000	Sunbeam (2)	48,500
Gladys & Mary (3)	102,400	Susie O. Carver (3)	24,200
Growler (1)	30,000		
		Theresa & Jean (3)	154,500
Harmony (2)	64,700	Tina B. (1)	17,000
Helen B. (1)	4,000	Two Brothers (3)	11,200
Hope II (2)	67,000		
		Venture I (2)	48,700
Invader (3)	137,300	Victor Johnson (3)	59,300
Ivanhoe (2)	65,000	Viking (3)	107,500
Janet Elise (3)	9,800	Whaler (3)	141,500
J. Henry Smith (2)	11,700	Winifred M. (2)	9,600

Scallop Landings (Lbs.)

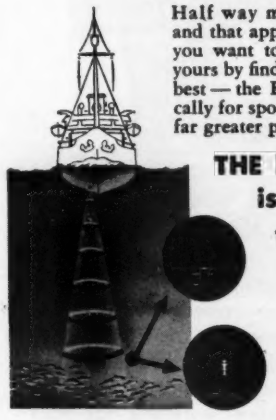
Adele K. (2)	22,000	Linda & Warren (3)	11,000
Agda (1)	6,000	Linus S. Eldridge (2)	22,000
Aloha (2)	22,000	Louis A. Thebaud (2)	20,500
Alpar (2)	20,000	Louise (2)	22,000
Amelia (2)	22,000	Lubenray (2)	18,200
Antonina (1)	11,000		
		Major J. Casey (1)	11,000
B. & E. (3)	25,400	Malene & Marie (2)	19,000
Barbara (2)	16,500	Marjorie M. (2)	8,000
Bobby & Harvey (2)	22,000	Marmax (2)	18,200
Bright Star (2)	21,500	Martha E. Murley (2)	22,000
		Mary Anne (2)	22,000
Camden (2)	22,000	Mary E. D'Eon (1)	6,200
Cap'n Bill (1)	6,500	Mary J. Hayes (2)	22,000
Caracara (2)	22,000	Mary J. Landry (2)	12,200
Carol & Estelle (1)	8,000	Monte Carlo (2)	21,000
Carolyn & Priscilla (1)	10,700	Moonlight (2)	19,500
Catherine & Mary	23,000		
Charles S. Ashley (3)	23,000	Nancy Jane (2)	16,000
		Nellie Pet (2)	22,000
Dartmouth (2)	22,000	New Bedford (2)	20,200
Debbie Jo-Ann (2)	22,000	Newfoundland (2)	20,000
Dorothy & Mary (2)	19,000	Noreen (2)	21,500
Edgartown (2)	22,000	Palestine (2)	16,000
Eleanor & Elsie (3)	28,800	Pearl Harbor (2)	19,500
Elizabeth N. (2)	19,000	Pelican (2)	22,000
Ethel C. (2)	18,400	Porpoise (2)	22,000
Eunice-Lillian (2)	18,000		
		Rush (2)	21,200
Fairhaven (2)	22,000	Ruth Moses (2)	9,300
Falcon (2)	22,000		
Fleetwing (2)	22,000	Santa Cruz (1)	5,800
Florence B. (1)	11,000	Sea Hawk (2)	21,000
		Sea Ranger (2)	22,000
Janet & Jean (2)	19,500	Stella Maris (1)	2,800
Jeannie Ann (1)	5,200	Sunapee (1)	11,000
Jerry & Jimmy (3)	24,700		
John G. Murley (2)	22,000	Ursula M. Norton (1)	11,000
Josephine & Mary (2)	19,500		
		Vivian Fay (2)	17,500
Kingfisher (2)	22,000		
		Wamsutta (2)	18,500
Laura A. (1)	10,500	William D. Eldridge (2)	22,000
Lauren Fay (1)	11,000	William H. Killigrew (2)	22,000

IF YOU WANT TO PROFIT BY FINDING FISH FASTER ELECTRONICALLY

USE THE BEST

GET THE BIGGEST HAULS

with the EDO FISHSCOPE



Half way measures get half way results and that applies to electronic fish finders. If you want to enjoy all the profits that are yours by finding fish faster be sure to use the best — the Edo Fishscope, designed specifically for spotting fish. It will pay you back in far greater profits.

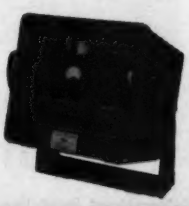
THE EDO FISHSCOPE is superior because:

1. It is available in three ranges: 0-500 feet, 0-250 fathoms; 0-400 fathoms.
2. It magnifies the view of schooled fish 20 to 40 times!
3. It is more precise than any other equipment available.
4. It is lowest in cost of all CRT fish finders.
5. It has simple, rugged design. Unitized construction permits at-sea replacement of basic elements as easily as changing a bulb.
6. It serves as an accurate depth finder, as well.
7. It is PROVEN! Dozens of satisfied captains on both coasts report the Fishscope helps them find bigger catches in far less time.
8. It is designed and backed by EDO, a leader in marine electronics.

See your Edo dealer or send for FISHSCOPE brochure

Navigate Accurately with

EDO LORAN



Most up-to-date equipment at lowest cost ever. Gives quick, directly-read position indications. Send for brochure on Model 262 Edo Loran.

Edo CORPORATION

College Point, L.I., N.Y. SINCE 1925

Cost of Fish vs. Cost of Paint

Just consider what the antifouling properties of a good bottom paint can do for you. A clean hull drives easily. A foul hull can use up to 10% more fuel. A clean hull gets you where the fish are, quicker, and gives you more time for fishing. Now consider the lasting qualities of the bottom paint. Longer time between haul-outs, lower cost for painting per year and more worktime for your vessel. This all adds up to the reason why you should use "SUPER-TROP" Antifouling Bottom Paint made by International Paint Company, Inc., specialists for over 70 years in the making of Marine Paints. Send for free descriptive folder.

FOR METAL BOTTOMS

INTERNATIONAL has developed a combination of a primer and an antifouling paint that offers the maximum protection and preservation of metal bottoms. Send for the two circulars, "SILVER PRIMOCON" and "SUPER-TROP"

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International Paint Company, Inc.
21 West Street, New York 6, N. Y.
So. Linden Avenue, So. San Francisco, Calif.
1145 Annunciation Street, New Orleans, La.

International Paints [Canada] Ltd.
6700 Park Avenue, Montreal, Quebec
105 West, 2nd Avenue, Vancouver, B. C.

WORLD'S LARGEST MARINE PAINT MAKERS

GLOUCESTER

Admiral (3)	195,000	Maine (2)	570,000
American Eagle (8)	321,000	Manuel P. Domingoes (1)	170,000
Anna Guarino (11)	81,500	Margaret Marie (6)	191,000
Anna Maria (6)	166,000	Margie L. (8)	15,500
Annie (8)	44,500	Maria Immaculata (10)	162,300
Annie & Josie (10)	87,000	Maris Stella (1)	150,000
Anthony & Josephine (6)	165,500	Mary (10)	69,500
Atlantic (2)	120,000	Mary Ann (3)	25,000
		Mary E. (9)	13,200
Bonnie Billow (1)	185,000	Mary Jane (1)	180,000
		Mary Marie (1)	40,000
California (7)	385,000	Mary Rose (3)	500,000
Carlannsul (6)	75,000	Minkette I (4)	2,500
Carlo & Vince (8)	296,000	Morning Star (1)	15,000
Catherine B. (8)	654,500		
Chanco (2)	200,000	Natale III (5)	315,000
Cherokee (3)	272,000	No More (10)	12,200
Cigar Joe (4)	297,000	North Sea (1)	160,000
Clipper (1)	150,000	Nova Luna (1)	2,500
Columbia (1)	180,000		
Curlew (3)	470,000	Ocean Life (1)	320,000
		Ocean Spray (3)	140,000
Dawn (10)	104,500	Our Lady of Fatima (2)	440,000
Dolphin (6)	745,000		
Doris F. Amero (1)	22,000	Peggy Belle (1)	500
Dragnet (2)	85,000	Philip & Grace (2)	240,000
		Pilgrim (1)	165,000
Eagle (1)	190,000	Pilhasca (1)	1,000
Eddie & Lulu M. (9)	36,500	Pioneer (9)	16,000
Edith L. Boudreau (1)	95,000	P. K. Hunt (2)	240,000
Emily H. Brown (2)	365,000	Ponce De Leon (11)	17,500
Estrela (2)	400,000	Priscilla (1)	1,000
Etta K. (5)	86,000	Puritan (2)	135,000
Eva II (11)	66,500		
Evelyn C. Brown (1)	230,000	Rodman Swift (6)	30,500
		Rose & Lucy (5)	323,500
Falcon (10)	116,500	Ruth E. (7)	10,000
Figueira Da Foz (1)	110,000		
Florence & Lee (1)	165,000	St. Anna Maria (3)	79,500
Flow (1)	250,000	St. Anthony (5)	780,000
Four (2)	355,000	St. Cabrini (7)	364,000
Frances R. (2)	21,000	St. Francis (10)	211,000
Frankie & Jeanne (11)	48,500	St. John (5)	12,000
		St. Mary (7)	272,000
Gertrude E. (4)	24,000	St. Nicholas (2)	261,000
Giacoma (5)	25,000	St. Peter (6)	245,000
Golden Eagle (1)	138,000	St. Providenza (10)	70,500
		St. Rosalie (6)	273,500
Hilda Garston (2)	390,000	St. Stephen (6)	21,500
Holy Family (2)	340,000	St. Terese (2)	61,000
Holy Name (6)	197,500	Salvatore & Grace (8)	637,500
		Sammy C. (1)	1,000
Immaculate Conception (6)	192,000	Santo Antonio (3)	47,000
Irma Virginia (3)	17,000	Sea Hawk (2)	300,000
		Sea Queen (3)	138,000
Jackie B. (7)	200,500	Sebastiana C. (6)	182,500
Jackson & Arthur (10)	115,500	Serafina N. (9)	390,500
Jennie & Lucia (1)	38,000	Serafina II (1)	48,000
Joseph & Lucia (2)	300,000	Star of the Sea (1)	20,000
Joseph S. Mattos (2)	395,000	Sunlight (2)	355,000
Josephine (1)	10,000	Sylvester F. Whalen (1)	165,000
Josie II (4)	107,500		
Judith Lee Rose (1)	320,000	Theresa M. Boudreau (1)	175,000
		Tipsy Parson (5)	12,000
Killarney (1)	170,000	Trimembral (6)	23,000
Kingfisher (2)	440,000		
		Vagabond (1)	59,100
Lady of Good Voyage (2)	200,000	Veronica N. (3)	6,500
Linda B. (6)	16,500	Victoria (9)	14,000
Little Flower (11)	290,500	Villanova (1)	240,000
Little Joe (8)	96,000	Virginia Ann (10)	141,500
Lone Ranger (1)	10,000		
Lorine III (1)	15,000	We Three (4)	35,000
Lucy Scola (7)	133,000	White Owl (4)	11,500
		Whitestone (5)	355,000
		Wild Duck (2)	320,000

Scallop Landings (Lbs.)

Abram H. (1)	5,000	Michael F. Densmore (1)	4,000
B. Estelle Burke (1)	9,000	Skilligolee (1)	4,000
Brother Joe (1)	5,000		

WOODS HOLE

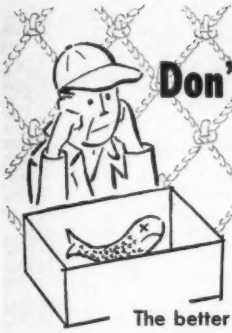
Arnold (3)	20,200	Liberty (1)	4,200
Austin W. (1)	3,700	Lt. Frank Kessler (1)	6,700
Bernice (1)	3,000	Little Lady (2)	1,200
Bluefin (1)	1,000	Madeline (3)	8,700
Carl J. (2)	11,500	Mary & Catherine (2)	6,700
Cap'n Bill (1)	37,100	Mildred & Myra (1)	12,000
Cap'n Bill II (1)	20,300	Morning Star (3)	5,400
Connie F. (1)	6,700	Natator (2)	1,500
Eugene H. (2)	55,200	Nautilus (1)	1,000
Eva Beal (1)	1,200	Priscilla V. (4)	50,400
Eva Clark (1)	600	Pvt. Frank T. Kessler (4)	24,600
Elva L. Beale (1)	6,200	Ruth & Nancy (2)	5,900
Intrepid (3)	7,100	Theresa (2)	12,700
J. Henry Smith (1)	2,000	William D. (1)	8,400
Kathy & Dick (1)	300	Winifred M. (1)	1,500
Kelbarsam (3)	13,200		

Scallop Landings (Lbs.)

Adele K. (1)	500	Smilyn (1)	10,100
Barbara & Gail (1)	8,100		

Swordfish Landings (No. of Lbs.)

Bozo (1)	500	Mary C. (2)	900
Christine & Dan (1)	19,200	Natator (2)	1,900
Dorothy & Everett (1)	400	Southern Cross (1)	2,400
Gertrude D. (1)	11,600	Three Bells (1)	11,400



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PORTLAND, ME.

Agnes & Elizabeth (4)	162,000	Mary & Helen (7)	96,900
Alice M. Doughty II (5)	178,000	Mary H. (1)	10,000
Andarte (3)	204,000	Mascot (1)	5,000
Bobby & Jack (1)	83,000	Medan (2)	580,000
Carmela & Louis (1)	1,500	Nora D. Sawyer (5)	62,000
Cathy & Aldie (1)	15,000	Rebecca (1)	17,000
Challenger (6)	86,500	Rebecca II (3)	27,500
Courier (1)	200,000	Resolute (4)	164,000
Crescent (8)	176,000	St. George (2)	390,000
Elin B. (2)	82,000	St. Joseph (1)	25,000
Elinor & Jean (5)	177,000	St. Joseph II (5)	115,000
Ethelina (3)	119,700	St. Marys (5)	39,000
Flo (1)	55,000	St. Michael (7)	53,000
Gretchen & Dale (1)	8,000	Theresa R. (3)	359,000
Lawrence Scola (6)	189,000	Vandal (4)	221,000
Lawson (4)	166,000	Vida E II (8)	100,000
Little Growler (2)	146,000	Wawenock (2)	500,000
Marie H. (3)	26,000	Winthrop (2)	350,000

Scallop Landings (Lbs.)

Empress (2)	19,500	Michael F. Densmore (1)	3,000
Mary & Julia (2)	22,000	Silver Bay (1)	9,000

ROCKLAND

Alton A. (2)	59,000	Flo (3)	97,000
Andarte (3)	257,000	Frances-Alice (1)	22,000
Araho (2)	240,000	Helen Mae II (4)	179,000
Calm (3)	910,000	John J. Nagle (1)	165,000
Crest (2)	560,000	Lilo (2)	47,000
Dora & Peter (1)	30,000	Little Growler (2)	103,000
Dorothy & Betty (4)	158,000	Mabel Susan (3)	125,000
Dorothy & Betty II (1)	32,000	Margaret & Jean (4)	89,000
Drift (1)	240,000	Myrt II (4)	81,000
Elin B. (4)	184,000	Ocean (1)	250,000
Ethel (1)	23,000	Surf (2)	545,000
Ethel B. (4)	56,600	Wave (2)	570,000

Scallop Landings (Lbs.)

Pocahontas (2)	22,000	Rhode Island (2)	22,000

BOSTON

Acme (6)	58,500	Morning Star (4)	129,200
Addie Mae (7)	58,600	Mother Frances (3)	123,400
Admiral (1)	54,100		
Agatha (4)	207,100	Nancy B. (2)	73,700
Agatha & Patricia (5)	128,400	Nautilus (2)	125,300
Angie & Florence (4)	70,100	New Star (1)	60,000
Annie & Lucy (1)	7,000	Notre Dame (4)	167,900
Arlington (3)	523,700	Nova Antonio (2)	4,100
Baby Rose (4)	253,800	Ocean Clipper (2)	76,800
Bay (1)	100,000	Ocean Wave (4)	145,500
Bonnie (3)	361,400	Ohio (2)	195,400
Bonnie Breaker (3)	330,100	Olympia (4)	114,600
Bonnie Breeze (2)	238,900	Olympia La Rosa (3)	116,500
Brighton (3)	354,600		
Buzz & Billy (3)	121,900	Pam Ann (3)	265,200
		Patty Jean (1)	123,000
Cambridge (3)	435,700	Phantom (2)	120,600
Carmela Maria (2)	18,300	Princess (1)	5,000
Carol-Jean (5)	159,300	Puritan (2)	67,700
Charlotte G. (1)	19,900		
Cigar Joe (1)	20,600	Racer (3)	328,400
Comet (2)	264,500	Red Jacket (3)	498,200
		Roma (2)	10,800
Doris F. Amero (3)	90,400	Rosalie D. Morse (2)	220,100
		Rose Mary (3)	35,200
Edith L. Boudreau (1)	22,600	Rosie (5)	74,900
		Rush (1)	84,500
Flying Cloud (2)	374,000		
		St. Anna (1)	7,100
Geraldine & Phyllis (3)	143,800	St. Joseph (2)	80,200
		St. Peter (1)	8,700
Jane B. (1)	93,500	St. Peter II (1)	85,200
J. B. Junior (3)	375,400	St. Victoria (4)	192,100
J. B. Junior II (3)	29,400	San Calogero (1)	10,000
Jennie & Lucia (2)	70,300	Sant' Antonio II (2)	25,500
Joe D'Ambrosio (4)	21,100	Santa Maria (3)	109,800
Josephine F. (1)	5,200	Santa Rita (2)	48,600
Josephine P. II (2)	81,400	Santa Rita II (2)	29,500
		Sebastiana C. (1)	21,200
Leonarda (4)	11,800	Serafina II (1)	20,700
Leonard & Nancy (3)	92,900	Star of the Sea (1)	63,700
		Swallow (2)	263,500
Magellan (3)	81,800		
Manuel F. Roderick (2)	128,800	Texas (2)	202,600
Maria Christina (3)	18,800	Thomas D. (3)	103,100
Maria Del S. (6)	33,900	Tina B. (1)	35,400
Mary & Jennie (1)	4,000		
Mary & Joan (3)	193,900	Villanova (3)	145,600
M. C. Ballard (3)	134,700		
Michael G. (1)	10,300	Winchester (2)	249,000
Michigan (2)	236,000	Wisconsin (2)	273,700

Swordfish Landings (No. of Fish)

Pam Ann (1)	1

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SEATTLE

Halibut Landings

Addington (1)	24,000	Liberty (1)	15,000
Albatross (1)	50,000	Lindy (1)	70,000
Aleutian (2)	103,000	Lloyd (2)	38,900
Arlice (1)	50,000	Lualda (2)	67,000
Alrita (2)	96,500		
Angeles (1)	47,500	Maddock (2)	34,900
Anne (2)	59,000	Marilee Ann (1)	30,000
Arne (2)	55,000	McKinley (1)	49,000
Arrow (1)	15,000	Merit (1)	10,300
Atlantic (2)	52,000	Mermaid (2)	46,800
Bergen (1)	24,000	Nanna (2)	62,000
Bernice (2)	50,000	Nightingale (2)	23,500
Bernice R. (1)	25,000	Nordby (2)	87,000
Brisk (1)	35,000	Northern (1)	56,000
		Northern Light (2)	77,200
California (2)	54,000		
Celtic (1)	58,000	Oceanus (2)	55,000
Chelan (1)	68,500	Orbit (1)	12,000
Christian S. (1)	27,000		
Columbia (1)	58,000	Pacific (1)	50,000
Constitution (1)	40,000	Pierce (2)	27,000
Coolidge (1)	22,000	Pioneer III (2)	38,500
		Platinum (2)	60,500
Daily (1)	33,000	Polaris (1)	65,000
Dolphin (1)	30,000	Princess (1)	32,000
Eagle (1)	43,000	Queen (1)	38,000
Eldorado (1)	55,000		
Empress (2)	46,200	Reliance I (1)	40,000
Estep (1)	18,000	Republic (1)	25,000
Ethel S. (1)	53,000	Resolute (2)	77,000
Eureka (2)	13,315		
Evening Star (1)	37,000	Salty (2)	17,000
		Sandra L. (2)	42,000
Faith II (2)	83,000	Sea Bird (1)	38,000
Flying Tiger (1)	45,000	Seattle (1)	36,000
Forward (2)	26,200	Shirley J. (2)	45,000
Freya (2)	45,000	Sonja (1)	48,000
		Soupfin (1)	80,000
Grant (1)	30,000	Sunset (1)	50,000
		Suzanne (1)	1,700
Haven (2)	10,000	Swift II (1)	9,500
Hoover (1)	29,000		
		Tillikum (1)	11,000
Ilene (1)	37,800	Trinity (1)	58,000
Inez M. (2)	53,000		
Ivanhoe (2)	66,000	Unimak (2)	48,000
		Urania (1)	34,000
Janette (2)	50,000		
J. B. (1)	33,000	Vansee (2)	90,000
		Vigorous (2)	75,000
Kingfisher (1)	22,000	Vivian (1)	60,000
Lady Olga (1)	38,000	Western (1)	27,000
Lane (1)	16,600		
Lansing (1)	5,200	Yukon (2)	21,300
Leading Lady (1)	34,000		
Leviathan (2)	65,000	Zenith (1)	57,000

NEW YORK

Scallop Landings (Lbs.)

Adele K. (1)	7,300	Maridor (2)	18,200
Beatrice & Ida (2)	22,000	Miriam A. (3)	27,000
Brant (1)	10,300	Muskegon (1)	7,400
Carol-Jack (3)	25,200	Norseman (2)	16,800
Catharine C. (3)	27,600	Patricia Ann (2)	13,600
Clipper (3)	20,600	Phyllis J. (2)	17,700
Enterprise (2)	22,000	Richard Lance (2)	17,000
Felicia (2)	15,200	Rosalie F. (3)	24,400
Florence B. (1)	11,000	S. No. 31 (2)	18,900
Karina T. (1)	7,800	Sunapee (1)	8,300
Malvina B. (1)	7,000		

Studying Influence of Tides and Winds on Lobster and Clam Larvae

The effect of surface and wind currents on the destination of lobster and clam larvae will be the subject of a unique and searching study launched from four points along the Massachusetts and Rhode Island coasts this month. Called "Operation Sentiment" by the Massachusetts Division of Marine Fisheries, the project was to start at Cape Ann, with floats containing watertight jars to be dropped from an airplane into the sea.

Similar drops were to be made at about the 3-mile distance off Plymouth Harbor, Vineyard Light and Point Judith, R. I. It was pointed out, for example, that knowing the destination of clam larvae off Plymouth Harbor would materially aid the department in advising commercial fishing interests on probable locales for new beds.

The floats being dropped are marked "Reward", and when finders open the jars packed into the floats they will find a survey information questionnaire. If it is filled out and sent back to the Mass. Division of Marine Fisheries, a reward will be sent to the finder.

Maryland Crabbers Make Good Catches in August

According to all reports, August was the best crabbing month of the season. The big catches of crabs were made in crab pots set out in deep water. However, the hauls were said to be spotty, depending on just where the crab pots were located. For instance, one crab-potter reported a catch of about 1900 lbs. of hard crabs in his pots, whereas another potter located not too far away got only about 500 lbs.

Trot-liners, scrapers and netters who operate in more shallow water than crab potters, also have been getting good catches.

Laboratory Making Study of Crab Meat

First on a list of problems for study at the new Seafood Processing Laboratory of the University of Maryland, located in Crisfield, is said to be a study of the factors that contribute to the deterioration of crab meat. Next in importance is the study of the physical, chemical and bacteriological properties of crabs and oysters to determine their quality.

The laboratory is in charge of Dr. R. A. Littleford, who has set up the program, and Dr. Charles Benarde, who is the bacteriologist and food technologist. In the experiments now under way with crab meat, by determining the effects in the various aspects of cooking, picking, storage and processing of the meat as regards its keeping qualities, it is hoped that economical methods of increasing the shelf-life of the product can be developed.

Suggestions have been made of other experiments the Laboratory could perform that might be helpful to the seafood industry. One of them was to determine the protein and vitamin content of oysters and crabs and crab meat so that packers could list them on the outside of packages, as a spur to sales.

Dr. Littleford has made contacts with quite a number of seafood packers, and is getting their ideas on what they hope the Laboratory can do to be of the most use to the industry. The desire to cooperate to the fullest has been stressed, and packers are invited to take their problems as they arise to the Laboratory officials, who will do all in their power to help solve them.

Oyster Tonging Season Opens

The 1955-56 oyster tonging season officially opened in most of Maryland waters on September 1st. Packing houses in Crisfield are being renovated and made ready for the approaching oyster shucking time.

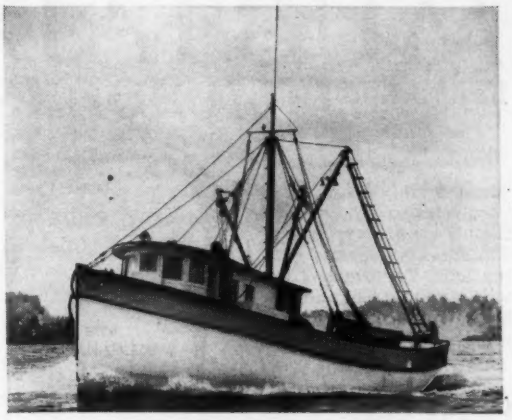
A larger number of watermen in lower Somerset County are overhauling their boats and running gear in preparation for the tonging season. Although the oyster tonging season opened in most Maryland waters on the 1st, it does not officially open in Somerset County waters until the 15th of the month.

The main source of supply for the packing houses for the first two weeks is shell stock brought in from other sections of the lower Chesapeake Bay.

Crabs in Floats Killed by Heavy Rains

Torrential rains late in August are reported to have caused death to thousands of crabs that were in the shedding floats, located at the various crab shanties in Crisfield. The watermen who operate floats in and around Crisfield, the Jenkins Creek and Ape's Hold Landing sections, report they suffered a big loss.

One waterman in the Jenkins Creek section who had about ten floats with around 300 crabs to each float, stated that all but 200 crabs to a float were dead when he fished his floats. These crabs, he said, would have brought as much as $2.00 per dozen.



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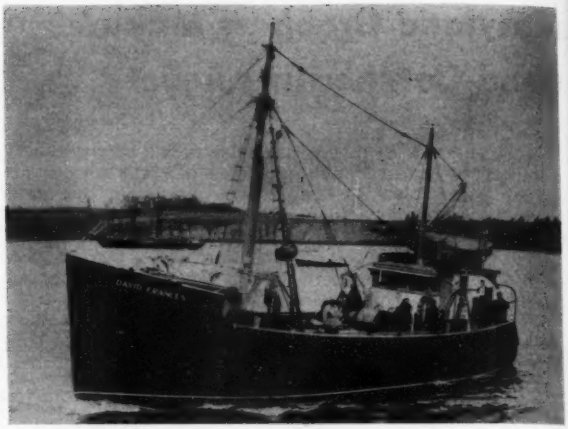

New 65' Nova Scotia dragger "David Frances" is skippered by Capt. Edward Hansen. She was lengthened from a 60' dragger design by Eldredge-McInnis, and is powered by a Model 35 Atlas Imperial Diesel delivering 195 hp. continuous at 1225 rpm.

New 65' Nova Scotia Dragger "David Frances" Doing Well

Designed to haul a maximum catch from the banks at a respectable cruising speed and to be handled easily from the bridge, the new 65' Nova Scotia dragger *David Frances* has done exceptionally well thus far. Her original-designed capacity was 75,000 lbs. of iced fish, but her catches have been running to 85,000, 89,000 and a whopping 91,000 lbs. The vessel, which is skippered by Capt. Edward Hansen, is rigged with gear for fishing both sides and can handle a scallop drag instead of her trawl when the market and season are right.

The *David Frances* was built at Lunenburg's Smith and Rhuland yards, and has a 64'10" hull which was lengthened from a 60 ft. dragger design by Eldredge-McInnis. Changes were made on permission of the Canadian Steamship Inspectors and the Fishermen's Loan Board to enlarge the wheelhouse, to construct the hull of native hardwood, to add a forecastle head and to increase the length.

The vessel's engine, a Model 35 Atlas Imperial Diesel delivering 195 continuous hp. at 1225 rpm., was built in the plant of White Diesel Engine Division of Springfield, Ohio, with delivery accomplished by their Halifax branch. It is fresh water cooled with a heat exchanger, and the engine alarm system is connected to a pilothouse station. There is a Lister FR-1 radiator-cooled auxiliary unit with a 3 kw. generator, a Quincy air compressor and a 2" Marine Products pump.

The *David Frances* carries Loran, a Fisher 50-watt radiotelephone, and 500-fathom depth recorder and fish finder. These are topside as are the Captain's quarters. Comfort of the 6-man crew below is assured by an oil furnace and oil galley stove. Fuel tanks hold 2425 gallons, and water capacity is 225 gallons.

New Edition of Cape Hatteras Chart

The seventh edition of nautical chart 1232 covering Cape Hatteras has just been published by the Coast and Geodetic Survey. The new edition was reconstructed from recent topographic surveys by the Coast and Geodetic Survey, supplemented by recent aerial photography.

Hydrographic and topographic surveys with revisions and additions from other sources were used in the compilation of the chart. Cable areas are shown in purple. Lights, beacons, buoys and dangers to navigation are corrected for information received to date of issue.

Texas Brown Shrimp Are Plentiful

Good times have returned to the Texas fishermen with the arrival of an abundance of good-sized shrimp, principally brown grooved, all along the Gulf coast. The total landings at the principal ports amounted to 5,952,200 lbs. for the 30-day period ending August 24.

The Aransas Pass-Corpus Christi area ranked first in landings with 1,947,900 lbs. of heads-off shrimp, for the 30-day period. Galveston-Freeport area was second with 1,807,500 lbs. Brownsville unloaded a total of 1,359,700 lbs., while Port Isabel recorded a catch of 693,400 lbs.

Shrimp Boats to Track Hurricanes

The Weather Bureau is going to install weather equipment on three shrimp boats, the *Whirlaway, Mada* and the *Cashwer,* to help track storms and hurricanes. The shrimp boats make regular runs from Brownsville to Carmen, Mexico, and at least one of them is at sea all the time.

The vessels will send radio reports to Brownsville every six hours. They will report wind direction and velocity, cloud conditions, barometer and thermometer readings.

Closed Bay Shrimping Season Enforced

August 31 was the last day of the closed season on large trawls in the bays, inland waters, and salt water lakes in Texas. Since July 15 only bait trawls with spreads under 10 feet had been lawful for use in taking shrimp in these waters.

The law limiting the spread of nets and size of net doors was passed some time ago by the Texas Legislature, but was not enforced until the 1955 bait shrimping season. About 30 violators of the law were arrested and fined. Bait shrimpers who violated the law held a meeting recently to protest its enforcement.

According to biologists of the Texas Game and Fish Commission, the bays and inland waters are the spawning and nursery areas of many game fish, as well as white and brown shrimp. For this reason conservationists favor the closing of bays for at least a part of the year.

During last season a check of shrimp brought in by small bay trawlers revealed that an average of 80 percent of the shrimp brought on deck were too small for commercial use. Since these shrimp, as well as many small fish were dead, they were shoveled overboard and wasted.

On August 31, a number of boats left the docks of shrimp producers along the middle and upper coast to make a check of shrimp prospects in the bays. A few boats made small catches in Matagorda Bay and around Seadrift, but trawlers from Ingleside, Corpus Christi and Rockport returned to port practically empty-handed.

Shrimp Production Shows Big Gain

Official landings of marine products at Texas ports the first ten months of the fiscal year 1954-55 were 94,185,750 lbs., which was 5.7 million lbs. less than the same period in 1953-54. The decrease was due to a drop of 18.3 million lbs. in menhaden production. However shrimp production increased to 61,259,500 lbs. from 49,835,300 lbs. the previous period.

All edible finfish increased from 2,186,600 lbs. during the ten months' period in 1953-54 to 3,359,750 lbs. for the same period in the current year. Red snapper production was 1,101,000 lbs., as compared with 853,500 lbs. last year. Red drum, trout, flounder, black drum, mullet, sheepshead and pike all showed a marked increase this year.

Crab production for the period was 44,970 lbs., a sizeable increase over the 38,660 lbs. for last year.

The oyster yield amounted to 320,140 lbs. of oyster meats, compared to 514,640 lbs. last year. This decrease was due to closing of reefs.

A new item appearing on the production lists for the first time in the history of Texas Gulf Coast fishing is tuna, which was landed commercially in the amount of 40 lbs.

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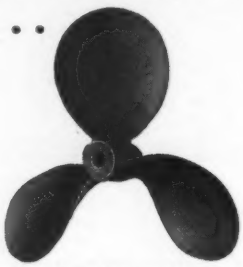

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Massachusetts Tuna Caught on Poles By Exploratory Vessel

The Fish & Wildlife Service vessel *Stormy Weather II* reported by radiotelephone on August 17 that approximately 2500 lbs. of bluefin tuna were caught the day before at a point about 20 miles south of Martha's Vineyard, Mass. The fish averaged from 20 to 25 lbs. in weight, and were taken on tuna poling gear, rigged with feathered barbless hooks. Live butterfish carried aboard in a specially-constructed tank were used to chum the fish alongside the vessel and within range of the fishing poles.

Two schools were sighted in the vicinity. One school was estimated to contain 75 tons of fish, the other 2 to 3 tons. The catch was made from the larger-sized school.

Records indicate that this was the first tuna catch made in the North Atlantic using live bait and pole fishing methods.

Seek Vessel for Scallop Research

The Fish & Wildlife Service is seeking the services of a scallop vessel and crew to conduct experiments and collect information on shellfish in the Georges Bank area. A call for bids on chartering of a boat and crew was made by the Government, and bids were returnable on September 12.

Specifications require the chartered boat to make four exploratory trips, the first one beginning about September 26 for 12 days, with subsequent cruises of 7, 7 and 12 days respectively, scheduled to be made December 12, April 2, and June 18.

One requirement was that two standard New Bedford type sea scallop dredges and related gear necessary for sea scallop dragging be furnished.

Plan Fisheries Exhibit at Exposition

The Bay State fishing industry will be the principal attraction in the Massachusetts exhibit at the Eastern States Exposition, Springfield, this month, if a proposal by Governor Herter's labor-management committee to promote the fishing industry is accepted.

Francis W. Sargent, chairman of the committee, has requested the State Dept. of Commerce to have preliminary sketches prepared depicting trawlers, lobster boats, fishing gear and other aspects of the industry, for use in the main hall of the State building in Springfield. It is planned to have the ports of Gloucester, Boston, New Bedford and Provincetown, as well as the smaller Bay State fishing ports, cooperate in putting on the exhibit.

"Delaware" Returns from Tuna Cruise

The exploratory fishing vessel *Delaware* returned to East Boston on August 10 following a ten-day trip to Gulf of Maine and southern New England waters. This cruise was designed to determine the availability of bluefin tuna and to test live bait and pole fishing methods in the tuna fishery.

After procuring bait the vessel proceeded offshore and scouted the South Channel and Nantucket Shoals area for signs of surface tuna schools. While traversing the grounds, three jig lines were trolled from the stern of the vessel at speeds from 7 to 8 knots. Four strikes were noted and two tuna, weighing a total of 35 lbs., were captured on the jigs.

The *Delaware* left on September 1 for deep-trawling operations in North Atlantic waters. This cruise, of 16 days' duration, is designed to explore the groundfish resources on the edge of the Continental Shelf in waters deeper than ordinarily fished by New England trawlers. The area covered in the survey is south of Nova Scotia and Newfoundland, at the edge of the Continental Shelf, in depths between 100 and 500 fathoms.

Aboard for the first part of the cruise was to be a staff of observers headed by Prof. William Miernyk of Northeastern University, who is conducting a study of the economics of freezing fish at sea.

New Bedford Dragger Owners Join Advertising Program

New Bedford fishing dragger owners August 9 agreed to join the New Bedford scallop advertising fund in a joint venture to promote the sale of New Bedford fish and scallops. The fund, established by John F. Linehan, general manager of the Seafood Producers Assoc., now includes scallop vessel owners, the Atlantic Fishermen's Union, members of allied industries, and some dragger operators.

Since establishment of the fund 18 months ago, prices of ex-vessel scallops have maintained a much higher level. Scallop prices the first six months of 1955 averaged 60 cents a pound. Last year the price averaged 40 cents for the same period.

It is said that through this advertising campaign the New Bedford fleet can combat foreign fish competition. In addition, publicizing and advertising New Bedford-produced flounder and other species will help influence wholesalers, retailers and consumers. The advertising group will be known as the New Bedford Seafood Council.

Dragger Does Well after Hurricane

The first dragger in with a catch after the hurricane alert was the *Pauline H.*, owned and skippered by Capt. Leif Jacobsen. She netted three times the normal price for her 70,000 lbs. of mixed fish because of the shortage. The estimated price was almost $12,000.

Approximately 50 craft sought the protective safety north of the Fairhaven-New Bedford Bridge, while others doubled-up lines at the piers with the threat of hurricane Connie. More than 140 vessels put into New Bedford and Fairhaven for several days until the threat of the storm was over.

Scallop Prices Reach New Summer-time High

Scallop prices reached an unequaled Summer-time high on August 18 of 75 cents a pound. The *Linda & Warren*, with 3,000 lbs. of the shellfish aboard, obtained the high bid. The record high for any season was recorded January 8, 1953, when the *Redstart* received 79.03 cents a pound for her catch. The high bid last month was attributed to the shortage, the catch being the first hauled in eight days due to the storm.

Dragger Sinks on Shoals

The 70-ft. dragger *Shirley and Susan* sank on rocky shoals off Nomansland August 17. Formerly the *Dagny*, the craft was homeward-bound when the accident occurred. Capt. Joseph Piva of New Bedford and his three-man crew were rescued by a Coast Guard vessel from Woods Hole. An attempt will be made to salvage the vessel.

It was the second time within a year that tragedy had befallen the craft. She was sunk off Union Wharf, Fairhaven, in the August 31 hurricane in 1954. Owner Gilbert C. Tavares of New Bedford raised, refitted and renamed the vessel. Mr. Tavares also lost the *Wonderer* in the same hurricane.

"Pauline H." Equipped with Radar

A type 1500 Raytheon radar installation was recently made on the *Pauline H.*, owned by the Jacobsen Fishing Co., Inc. of Fairhaven, Mass.

Two Dragger Owners Die

Death claimed two New Bedford dragger owners during August. Charles L. Waite, 67, died on August 1. He was captain of his own boat and retired from the sea in 1953 because of illness.

Wilfred A. Cromie, 48, of Fairhaven, co-owner and skipper of the dragger *Clara C.*, died suddenly August 14.

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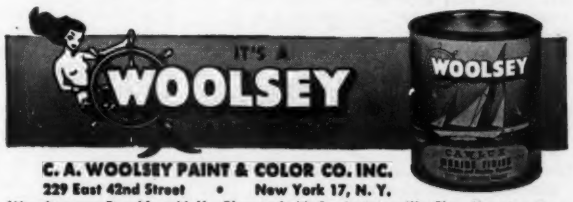

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FOREIGN BAILINGS

PINK SALMON TREATY is wanted by Canadian Government and British Columbia fishermen, who are seeking to save the fish from depletion through unregulated competition. The Canadians claim that in recent years, United States fishermen, by going farther out to sea, have taken as much as an 80% share of the runs. They maintain that a 50-50 division could lead to a long-term program of study and research which would put pink salmon fishing on as sound a basis for management as sockeye.

SCALLOP REGULATIONS are expected to be issued soon for Newfoundland by Canadian Federal Department of Fisheries, which is fearful that large-scale scallop dragging in Port au Port Bay, Nfld., may result in depleting scallop beds to such an extent that continued fishing would not be commercially profitable. The regulations will prohibit scallop dragging during lobster fishing season, and also will restrict size of fishing vessels used in scallop dragging operations.

JAPANESE SALMON CATCH by high seas fleets (14 motherships, each with about 25 catcher boats) amounted to 57,758,291 salmon as of August 5. Last year's catch was only 20,493,645 salmon.

AN "ACTIVE RUDDER" which incorporates a small propeller driven by a 100 hp. electric motor, is a feature of West Germany's new 209' research ship *Anton Dohrn*. The "active rudder" greatly increases maneuverability and, it is hoped, will enable the 1000-ton research ship to engage in drift netting as well as trawling. The vessel has a shelter deck to enable the crew to continue sorting, heading and gutting the catch in bad weather.

TERRITORIAL WATERS CLAIMS of South American countries apparently are not recognized by Britain. Speaking in the House of Commons recently, Anthony Nutting, Minister of State for Foreign Affairs, said that the British Government remains unable to admit the claims of Chile, Peru and Ecuador to sovereignty over waters extending 200 miles from their coasts.

NORWAY'S SARDINE CATCH this season up to July 7 included approximately 69.2 million pounds of brisling sardines, only about one-half as much as the landings for same period a year earlier. The 1955 catch has been the poorest in years. In fishing circles it has been maintained that the poor catch is due to increased fishing on the brisling breeding grounds.

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